A few research studies have suggested that collegiate coaches may be important people in regard to injured athletes’ ability to cope with the emotional stress of injury and to successfully re-enter the sport context. Given the lack of research on coaches’ role in the athletic injury process, the current research project was designed to: (a) identify and describe the attitudes and behaviors that coaches exhibit towards injured athletes and to (b) determine if particular types of coaching leadership styles are related to their attitudes and behaviors towards injured athletes. Self-report questionnaires were administered to 416 collegiate athletes to measure their perceptions of the motivational climate their coaches create and their perceptions as to how their coaches behave towards injured athletes on their team. Univariate and multivariate statistical analyses revealed a strong link between the team’s motivational climate and athletes’ perceptions of their coaches’ behavior towards injured athletes.
EXPLORING THE RELATIONSHIP
BETWEEN ATHLETIC INJURY
AND COACHING BEHAVIOR

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CHAPTER ONE – INTRODUCTION

Athletic injury has played an important role in the sport experience for many athletes. In a recent review of the available data on sports injuries, Caine and his colleagues (Caine, Caine, & Lindner, 1996) suggested that such injury could be classified as a public health problem. Although injury rates do vary as a function of the type of sport and level of participation (Uitenbroek, 1996), a relatively large number of high school and college athletes do experience some type of sport-related injury each year. Specifically, as many as eight out of ten athletes appear to be injured at some point during their high school and college careers (Henderson & Carrol, 1993).

Obviously, such injury can have a negative effect on collegiate athletes, not only in terms of lost playing time and possibly temporarily decreased performance competencies, but also in regard to their psychological and emotional well-being. A number of research studies (see recent reviews by Brewer, 2001; Udry & Andersen, in press) have shown that injuries in the sport setting are a significant form of stress for athletes and can result in heightened depression, anxiety, confusion, loneliness, and fear, emotions that are often accompanied by, or can result in, decreased feelings of self-confidence and self-esteem.

Given the physical and emotional trauma that can be associated with athletic injuries, it is important for injured athletes to be able to cope with the psychological stress and to have a successful rehabilitation experience. Over the past several decades, a number of research studies have been conducted to identify the factors that may affect individual athletes’ responses to injury as well as their commitment and adherence to the required rehabilitation program (see Brewer, 2001 and Udry & Andersen, in press for reviews). As the review of the research in the next chapter will show, the amount and quality of the social support that athletes receive in response to their injury and the rehabilitation of that injury may be a key factor in their successful return to play.

The dimensions of social support that have been identified by Richman, Rosenfeld & Hardy (1989) to be important to the injured athlete include: listening support, emotional support, emotional challenge, task appreciation, task challenge, reality confirmation, material assistance and personal assistance. Social support has also been
identified as a factor that may serve to buffer the athlete from stress (Hardy, Richman, & Rosenfeld, 1991). Specifically, injured athletes who know that there are individuals in their sport and/or social environment who are available to help them may be more equipped to cope with the emotional and physical consequences of the injury.

Social support for injured athletes can come from a number of sources, including family, teammates, friends, coaches, and athletic trainers or other medical support staff (Petipas 1999). A few recent studies (e.g., Gould, Udry, Bridges, & Beck, 1997; Johnston & Carroll, 1998; Udry, Gould, Bridges & Tuffy, 1997) have been conducted to examine the role of social support agents in the injury rehabilitation process. These studies have generally found that different types of social support from the different agents were beneficial at different times in the recovery process. In particular, social support from teammates was found to positively affect injured athletes, as such individuals provided emotional support, technical challenge and informational support (Johnston & Carroll, 1998; Udry et al., 1997, Rosenfeld, Richman & Hardy 1989). Family members were found to have provided injured athletes with technical appreciation support, and emotional support at the start of rehabilitation (Johnston & Carroll, 1998; Udry et al., 1997, Rosenfeld et al., 1989). The social support given by friends have included listening, emotional support at the beginning of rehabilitation, emotional challenge and shared social reality (Johnston & Carroll, 1998; Rosenfeld, Richman & Hardy 1989).

In general, then, the results of these social support studies have shown that injured athletes can and should get different types of support from a variety of individuals in their social network, including family, friends, and teammates. In addition, however, injured athletes' coaches may also play a significant role in the rehabilitation process. That is, the research studies on social support have also found that coaches were important social support agents for injured athletes (Johnston & Carroll, 1998; Udry et al., 1997). However, some coaches were perceived to contribute in a positive way while others were perceived to contribute in a negative way. Specifically, coaches contributed in a negative way by being distant, making injured athletes feel as if they were no longer a part of the team, and by pushing injured athletes to play before they were ready. In contrast, coaches who were perceived to provide positive social support to injured athletes did so
by keeping in constant communication with injured athletes during the recovery process and by providing information, technical and emotional support for the athletes' rehabilitation (Udry et al., 1997).

As the research cited in the previous paragraph shows, coaches may be important social agents in affecting athletes’ responses to injury as well as their adherence to the rehabilitation process. However, very little research-based information is available regarding the particular behaviors and attitudes that coaches may exhibit towards injured athletes. Furthermore, it is also currently not known whether or how coaches’ leadership styles would relate to their attitudes and behaviors toward injured athletes on their team. Based on previous research in the coaching effectiveness literature (see recent reviews by Duda, 2001; Horn, in press; Ntoumanis & Biddle, 1999), it could be hypothesized that the type of motivational climate that coaches create in practices and competitive events is directly related to the way in which injured athletes on the team are perceived and treated. Specifically, coaches who create a mastery-oriented or task-involving team climate value skill development, believe that the process is more important than the outcome, show value for all players on their team, and view performance mistakes as opportunities for learning. In contrast, coaches who create a performance-oriented or ego-involving team climate instigate intra-team rivalry (i.e., "pit" individual players against each other), punish athletes for performance mistakes, and place value on the best players on their team while ignoring others.

Over the last 15-20 years, a considerable amount of research has been conducted to examine the effects of the two types of coach-initiated climates on athletes' performance, satisfaction, enjoyment, level of intrinsic motivation, and anxiety (see reviews of this research by Duda, 2001; Horn, in press; and Ntoumanis & Biddle, 1999). The results of this research have clearly supported the value of a more mastery-oriented or task-involving team climate. Recently, two additional studies conducted by Reinboth and Duda (2004, 2006) have linked a task-involving climate to higher levels of mental and physical health on the part of athletes, while an ego-involving climate was linked to higher levels of mental and emotional stress as well as to lower levels of physical health and well-being.
Although the Reinboth and Duda studies (2004, 2006) did not directly assess the link between the coach-initiated motivational team climate and coaches' attitudes and behaviors toward injured athletes on their team, such a link would seem likely. That is, a performance-oriented or ego-involving climate has been defined as one in which the coach emphasizes intra-team rivalry and focuses most of her/his time on those team members who are performing well. Thus, it seems reasonable to believe that in such a climate injured athletes would be perceived as liabilities and would be ignored. In contrast, in a mastery-oriented or task-involving climate, the coach emphasizes skill learning rather than performance outcomes and places value on all members of the team. In such a climate, it would seem likely that injured athletes would receive more positive attention and would still be considered a valuable part of the team.

Although these links between the types of climate coaches create in team contexts and the way in which coaches treat injured athletes on their team appears likely, such a link has not yet been investigated. Therefore, the overall purposes of this study were to: (a) identify and describe the attitudes and behaviors that college athletes perceive their coaches to exhibit towards injured athletes on their team; and to (b) determine if particular types of coaches' attitudes and behaviors towards injured athletes on their team can be predicted by the type of motivational climate that coaches create on their teams. To provide a context for this proposed study, the relevant research pertaining to athletic injury, the role of social support, and the specific role of coaches are reviewed in the next chapter.
CHAPTER TWO – REVIEW OF THE LITERATURE

As noted in the previous chapter, there are a large number of collegiate athletes who experience sport-related injuries each year. Over the past several decades, researchers in the sport psychology field have conducted studies to examine the impact of such sport injuries on athletes’ psychological and emotional well-being. In addition, based on the fact that there seems to be considerable variability between athletes in their responses to sport injury, several studies have also been conducted to identify the factors that may affect athletes’ ability to cope with injury and to adhere to the rehabilitation protocol. These studies have generally identified social support as a key factor in the injury response and rehabilitation process. The research and theory corresponding to these topics is reviewed and summarized in the following sections of this chapter. This review begins with an overview of the research that describes athletes’ psychological, emotional and behavioral responses to injury. The second section provides a review of the research on the role of social support in relation to athletic injury, and the third section reviews the more specific role of the coach in athletes’ response to injury and the rehabilitation process.

Athletes’ Responses to Injury

The research studies conducted to examine athletes’ responses to injury can be broadly divided into two categories: those that focus on athletes’ emotional/psychological responses and those that focus on athletes’ behavioral responses. A summary of the research in these two areas is provided in the following sections. This review is primarily limited to studies that were conducted with collegiate athletes or elite athletes (Olympic or international level) who were over 18 years.

Emotional and Psychological Responses to Sport Injury

Quackenbush & Crossman (1994) explored emotional reactions among injured athletes using a time-oriented design. Specifically, the purpose of this study was to examine injured athletes’ emotional responses during four different phases of injury: at the start of injury, the day after, throughout rehabilitation and after returning to competition. The study participants included 25 competitive or recreational athletes who had suffered from an athletic injury within the last year and who varied in age from 18 to
A total of 36% of the participants had experienced major injuries, 44% had moderate injuries, and 20% had suffered from minor injuries. The researchers used a questionnaire format to ask athletes to retrospectively indicate what feelings they had experienced during each phase of the injury.

The results of this study (Quackenbush & Crossman, 1994) did reveal differences over time in athletes’ emotional responses to their injury. Specifically, at the beginning of injury, the emotional responses consisted of anger and frustration. These initial negative emotions, along with feelings of discouragement, decreased from the initial time of injury to the start of return to participation. The positive emotions of hopefulness and optimism intensified from the beginning of the injury through the recovery process. The negative emotions of being irritable, miserable and unhappy were described as elevated during stage 2, the day after injury. The study also found that negative feelings lessened significantly, and positive feelings intensified between stage 2 and 3. The negative emotional reaction of frustration was evident at each stage, although the percent of athletes reporting the frustration response declined from 64% during stage one to 28% in stage 4. Some gender differences in emotional response to sport injury were also found in this study. That is, females described both more positive and negative feelings during each stage than did their male peers. During stage 2, males expressed anger and/or irritability. In contrast, the females did not exhibit anger, but reported feeling frustrated and miserable. During stage 4, females were more apt to express positive emotions at the prospect of returning to practice than did males. In general, the findings from this study support the argument that injured athletes experience a wide range of emotions throughout the rehabilitation process. Furthermore, the assumption that with time negative emotions will be reduced and positive emotions will increase was supported in this study.

In a larger study conducted with 343 male collegiate athletes, Leddy and his colleagues (Leddy, Lambert, & Ogles, 1994) assessed the psychological status (level of depression, anxiety, and self-esteem) of all athletes from ten NCAA Division I male sport teams during a pre-season physical examination. Out of this sample, those athletes who experienced injury during the season were assessed within one week of experiencing the injury and again two months later. To provide a comparison, a matched group of
uninjured athletes was also assessed at each time point. Multivariate analysis of this data showed that injured athletes scored higher on depression and anxiety and lower on self-esteem than did their non-injured teammates, both immediately after the injury and up to two months later. As Leddy et al. note in their discussion, the emotional distress scores exhibited by some of the injured athletes were comparatively high and certainly support the fact that athletic injury is a source of stress for collegiate male athletes. Furthermore, there did seem to be considerable inter-individual variability in injured athletes’ responses to their injury.

More recently, Tracy (2003) used interview techniques to explore the emotional reactions among college athletes recuperating from moderate to severe injuries across three stages of injury rehabilitation: beginning of injury, 1 week following injury, and 3 weeks following injury. The participants involved in this study were collegiate athletes, both men and women from Division III colleges taking part in a variety of sports (e.g., baseball, soccer, volleyball, track and field, rugby and lacrosse). Those involved with this study had experienced either a moderate or severe injury that prevented them from practicing or competing for at least 7 days in a row. In the first interview, injured athletes reported feeling unhappy, fearful, annoyed and being on “a rollercoaster of emotions” (283). In the second interview, eight out of ten athletes referred to the fact that the physical appearance of the injury impacted their emotional reaction. In the third interview, athletes indicated that conversing about their feelings with teammates, friends, family, and other injured athletes was beneficial. Although the participants in this study did experience some negative emotional reactions to their athletic injuries, the results also indicated that the athletes were very positive and willing to do anything to guarantee a successful recovery. Specifically, they described the injury as a chance to learn about themselves and to grow as a person and as an athlete.

Granito (2001) explored the athletic injury experience by using a different qualitative methodology (e.g., a focus group approach). The specific purpose of this study was to offer a more comprehensive and vivid depiction of the reactions and experiences of intercollegiate athletes who had been injured. This particular study added to the research base because the researcher obtained the perceptions of the injured athletes as well as the perceptions of the athletic training students who worked with these
injured athletes. For this study, Granito formed a total of four focus groups. The first two groups included four athletic trainers in each, and the second two groups consisted of athletes, with four injured athletes in one and three in the other. All participants attended the same Division II University on the West Coast. The rationale for including athletic training students was because each athletic trainer was assigned to a team for the full year and because the trainers attended all practices and games and traveled with the team for away games. Thus, the researcher assumed that these “involved” participant-observers could provide an interesting perspective on the athletic injury process. The athletes who were in the third and fourth focus groups were from a variety of sports and had experienced a wide range of injuries that were moderate to severe in nature (e.g., anterior cruciate ligament tears, second-degree ankle sprains, torn hamstring).

The responses provided by athletes and athletic trainers in this focus group study (Granito, 2001) were transcribed verbatim and an inductive analysis of the data revealed several themes. First, personal factors emerged as a theme in participants’ discussion as to the factors that affect athletes’ responses to injury. That is, the personality of the athlete was identified by all of the student trainers and one athlete as a major factor affecting athletes’ psychological and emotional reactions to injury. Within this theme, participants talked about how injury could alter the athlete’s personality or perspective of him or herself. In regard to athletic identity, 42.9% of athletes and 87.5% of athletic training students identified this sub-theme as an important factor affecting the injury response. As for role on the team, 87.5% of athletic training students recognized this as a concern and 57.1% of athletes also did so.

The second theme identified in this study (Granito, 2001) focused on the effects of athletic injury on relationships that athletes had with other people. Each participant in all four focus groups suggested that injury had impacted the relationships between athletes and important individuals in their lives. The relationship with athletic trainers was revealed to be an important concern by all of the athletic training students and five of the athletes. The relationship appeared to control how an athlete copes with an injury. That is, trust and confidence in the trainer may strengthen the rehabilitation process. Injury also impacted athletes’ relationships with teammates and affected how the athletes reacted to their injury. This was discussed by four athletes and five athletic training
students and was interpreted by athletes either positively, such as support, or negatively, such as pressure. Coaches were also identified to play a role in the athletic injury experience. A total of five athletes and four athletic training students discussed this. This relationship between coach and athlete can influence athletes’ emotional condition in that athletes interpreted their coaches as either supportive or not supportive of their injury recovery. Relationships with other injured athletes appeared to be beneficial in that all seven athletes and seven of the student trainers mentioned the importance or benefit of such a relationship. Parents were also perceived to impact the injury experience. In particular, 85.7% of athletes mentioned that their parents pushed them in relation to their recovery from their injury. But, 62.5% of the athletic trainers revealed that parents could also be a cause of stress during the recuperation process.

A third theme identified in this study (Granito, 2001) was labeled as sociological elements. This included perceptions of gender differences and subculture effects. A total of 28.6% of athletes and 87.5% of athletic training students believed that males and females reacted differently to injury. Their rationale for this claim was based on what they saw as variations between the sexes, differences in athletic opportunities for males and females, and the differential nature of female sport. Seven athletic training students and one athlete mentioned concerns about team and sport subcultures. Specifically, these participants noted that the “norms” that are characteristic of some sports may encourage athletes from those sports to inappropriately play through pain or to perceive injury as a symbol of vulnerability.

A fourth theme in this study (Granito, 2001) was labeled as a physical factors theme and included perceptions of pain, physical de-conditioning, surgery and painkillers. All of the athletes and seven of the student trainers discussed the role of pain throughout the rehabilitation process and after surgery. Surgery can be difficult on athletes, particularly as they may perceive a significant loss of physical ability as a result of the surgery. Four athletes and all of the athletic training students reflected on this process. Painkillers were discussed by 71% of the athletes and 62% of athletic training students as a method to continue playing.

Daily Hassles or effects on life comprised a fifth theme identified in this study (Granito, 2001) by all athletes and 37% of athletic trainers and focused on how the injury
had impacted other areas of the athlete’s life. Some of these daily hassles included: moving on crutches, concentrating at school, staying away from activities that may re-injure or worsen the injury and interruption of daily life tasks. The feelings associated with injury were mentioned by all the athletes and athletic trainers. Frustration was an emotional response indicated by all athletes and trainers. Some other responses included: isolation, boredom, depression, relief, anger, fear and confusion. Rehabilitation was another category, with all athletes and athletic training students including issues related to the actual rehabilitation process. The statements made by participants expose the complexity of the recovery process with specific issues identified such as motivation, attitude, personal control, and expected recovery. In general, the results of this study provided a very comprehensive set of ideas regarding the emotional and psychological responses of athletes to sport injury. However, the sample was limited in that all participants were from the same school.

In a follow-up study, Granito (2002) looked specifically at gender differences and/or similarities in athletes’ responses to injury. The participants included a total of 31 injured athletes from two similar Division I universities on the west coast. The criteria for inclusion in this study consisted of being injured because of participating in sport and being absent from at least two weeks of competition and/or practice. The participants varied in age from 18 to 21 and took part in a variety of sports including: soccer, volleyball, basketball, softball, baseball, football, crew, tennis, and lacrosse.

This study (Granito, 2002) employed a qualitative methodology. Specifically, the participants took part in a multi-level interview process. This included an in-depth interview as well as follow-up telephone interviews. A content analysis of the results from these interviews showed that women athletes tended to be less pleased with the coach-athlete relationship after (or as a result of) the injury and did not describe any social relations with significant others (boyfriend/girlfriend) that provided support for the injury process. Female athletes also appeared to be more troubled with how the injury would impact their future health. Some women athletes described negative behaviors from their coaches after their injury, which led to dislike for the coach. Male athletes described receiving support from their girlfriend, whereas no female athletes described support from a boyfriend. Female athletes had more negative experiences with injury and
with their coaches following the injury than did the male athletes. It should be noted, also, that all of the male athletes had male coaches. However, approximately half of the female athletes (n = 8) had female coaches while the remaining female athletes (n = 7) had male coaches.

Understanding and interpreting the results from this study (Granito, 2002) should be done with caution because the study was retrospective, which may have restricted the participants’ ability to remember the incidents concerning their injury. Also, the researcher employed no control to regulate the time that the injury took place and when the interviews were conducted. That is, athletes were interviewed at different points in their recovery process. Finally, it should be noted that this study actually found more similarities than differences between male and female athletes in their responses to athletic injury, but the results and discussion concentrated mostly on the gender differences that were found.

In general, the combined results of the studies cited or described in this section indicate that collegiate or elite athletes do exhibit or experience a range of psychological or emotional responses to sport injury. However, there also appears to be considerable inter-individual variability in athletes’ injury responses. This variability and the factors that can explain such variability are consistent with the model proposed by Wiese-Bjornstal and her colleagues (Wiese-Bjornstal, Smith, & LaMott, 1995). This model identifies a number of pre-injury factors (e.g., personality, history of stressors, coping resources and interventions) that can affect or predict individual athletes’ reactions to injury and to the rehabilitation process. Specifically, personal and situational factors are proposed to affect athletes’ cognitive appraisal of the injury. Cognitive appraisal, in turn, influences both behavioral and emotional responses to injury, and these behavioral and emotional responses affect the outcome of the recovery process. Although some research has been conducted to examine the applicability of this model (see Udry & Anderson, in press. for review), additional research is needed to identify the specific individual and situational factors that can affect athletes’ response to injury.

Behavioral Responses to Injury

The research studies in this category have generally been conducted to examine athletes’ behavior with regard to the rehabilitation process. Thus, these studies focused on
athletes’ commitment and/or adherence to the physical or training activities that are necessary to get them back to play.

Quinn & Fallon (1999) investigated the modifications both psychologically and emotionally in elite athletes from the start of the injury to complete recovery. The factors explored in this study included: emotional responses, self-efficacy, coping skills, self-motivation and confidence. The participants consisted of 136 elite injured athletes, which included 118 male and 18 female athletes, with an average age of 24.6 years. These athletes participated in a wide range of sports and had experienced a variety of sport injuries. The length of their recovery was characterized as the number of weeks the athlete was incapable of competing at the full level of training, with the mean number of weeks being 19.25. Injury was operationally defined as “physical damage sustained as a result of sport participation” (214).

Data collection for this study (Quinn & Fallon, 1999) occurred at four different time periods. The phase 1 section of the survey was filled out after the assessment of the injury by medical personnel and during the first week following the injury. Phase 2 was finished approximately one-third of the way into recovery, and phase 3 at two-thirds into the recovery time. Phase 4 of the survey was completed after the athlete had recovered fully. The State Sport Confidence Inventory (SSCI) (Vealey 1986) was used to assess self-confidence at each data collection phase. Injury appraisal was supplied by the doctor or physiotherapist at each phase of the injury recovery process. Athletes’ emotional responses were measured through administration of the Profile of Mood States (POMS) (Grove & Prapavessis 1992). To assess coping skills, the COPE inventory (Carver, Scheier & Weintraub 1989) was used. This inventory measures problem focused coping, totaling five subscales “(active coping, planning, suppression of competing activities, restraint coping and seeking of instrumental support), five subscales measuring emotional focused coping (seeking emotional social support, positive reinterpretation, acceptance, denial and turning to religion) and three scales measure coping responses that are not as beneficial (focus on and venting of emotions, behavioral disengagement, mental disengagement)” (216). To measure rehabilitation motivation, participants were asked to rate the amount of effort they put into their rehabilitation program. Self-motivation was measured by having the participants rank on a scale from 0 to 100 the amount of their
rehabilitation program that had been completed. This self-report questionnaire was administered during phases 2, 3 and 4 of the recovery process.

The findings of this study (Quinn & Fallon, 1999) revealed a positive rise or increase in athletic function (i.e., an increase in amount of muscle and range of motion and movement function) during the rehabilitation process. Athletic function was at the lowest point at the onset of injury, but rose from stages 1 through 4. Negative mood states peaked at phase 1 and declined with each successive phase. The positive emotion of vigor was the lowest at the onset of injury and rose considerably in the following weeks and months of recuperation. In regards to self-efficacy, all of these elite athletes sustained a high level of confidence in their commitment to the rehabilitation program, and no modifications took place over time. There was a difference, however, in their confidence to reach full recovery. As athletes healed from their injury, their confidence to accomplish a complete recovery declined. The strength of athletes’ effort and the amount of rehabilitation completed intensified over time. The athletes also constantly employed active coping as opposed to other types of coping, which were rather stable over time. Confidence totals were elevated at the onset of injury, but then diminished to stage 2, and then rose again from stage 2 to 4. In general, the results of this study were useful in describing athletes’ rehabilitation behavior but also in identifying some of the psychological factors that are correlated with the success of the rehabilitation phase.

Podlog & Eklund (2006) also examined athlete’s return to sport using a longitudinal approach. The participants included 12 athletes who ranged in age from 18 to 28. These athletes were competitive and semi-professional, with five athletes involved at the international senior level and two athletes involved at the junior level. The participants were recruited through the Western Australian Institute of Sport (WAIS), local semi-professional sport teams in Perth, Western Australia, and the National Training Center in Center in Calgary, Alberta Canada. All participants were injured and had missed training or competition for an average of 7 months.

Two semi structured interview guides were developed for this study (Podlog & Eklund, 2006). The first interview guide was intended to obtain pre-competition information on participant experiences from the period that they started training with teammates until they returned to their sport. The second interview guide was developed
to provide insight into athletes' return to sport over a 6-8 month time period after the first interview. Participants were interviewed two or three more times during the 6-8 month period using the second interview guide. The time involved with the injury influenced the number of times the participants were interviewed. The interviews were transcribed verbatim, and themes were developed within each interview and across interviews.

The results from these analyses (Podlog & Eklund, 2006) revealed that serious injury led to greater insight about the reasons for engaging in sport. Returning to sport was accompanied by a variety of both positive and negative emotions and thoughts. Those emotions ranged from enthusiasm and eagerness to worry and fear. Athletes reported a range of reasons to return to sport such as accomplishing individual goals, a passion for the sport, connecting and socializing with teammates, continuing fitness levels and protecting identity. Return to sport was accompanied by both positive and negative feelings, but it was also perceived as intimidating because of many “unknowns” about what to expect when returning to sport. Athletes also described worry and fear regarding the possibility of re-injury and a sense of uneasiness over the possibility of failure to meet their goals after they had already invested so much time, energy, and effort to be successful in their sport. The participants also talked about their worries regarding the possibility that they would not be able to reach the expectations set by other people and thus let their teammates or coaches down. Challenges related to return to sport included: adjusting to the intensity of competition, troubles with injury flare-ups, enforced absence from the team selection process, or decreased confidence. The athletes also developed a different insight or understanding about sport in their lives. Specifically, they noted that the injury might have had a positive effect in that it raised their level of motivation, helped them learn about the sport from the sidelines, or helped them become more mentally tough with a higher level of pain tolerance. As Podlog and Eklund note in their discussion, the results from this study provide some interesting and potentially useful information regarding injured athletes’ return to competition.

In summary, the research studies cited in this section clearly show that athletic injuries are a significant source of stress for collegiate and elite athletes. In particular, a wide range of psychological, emotional and behavioral reactions are seen in athletes who experience a sport related injury. In addition, however, there appears to be considerable
variability between athletes in their reactions to injury. Thus, over the past ten to fifteen years, a number of research studies have been conducted to identify the factors that would explain such variability (see Brewer, 2001 and Udry & Anderson, in press). One of the key factors identified in this body of research is the quality and amount of social support that athletes perceive they have available to them during the injury and rehabilitation process. The research and theory corresponding to the relationship between social support and athletic injury is reviewed in the following sections.
Social Support and Athletic Injury

Within the last couple of decades, researchers in the health psychology and the sport psychology fields have begun investigating the role that social support can play in either preventing disease or injury in individuals or in facilitating their rehabilitation from such disease or injury. To provide a context for the review of the literature on social support and athletic injury, this section begins with an overview of social support as a psychosocial construct.

Overview of Social Support

Although various definitions of social support exist within the psychology literature, social support can perhaps best be defined as “an exchange of resources between at least two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient” (Shumaker & Brownell 1984: 13). The primary purpose of social support is for significant others to supply the recipient with encouragement, as well as to facilitate the recipient’s opportunities to express emotion and to enhance her or his communication with others. Social support can minimize the individual’s feelings of ambiguity and uncertainty during moments of trauma and can supply the individual with both practical or material resources and camaraderie while relieving the individual’s mental and physical stress. A review of the literature on social support in health contexts shows that such support from significant others facilitates the patient’s commitment to health routines in cardiac rehabilitation (Udry 1996), provides a strong source of information for AIDS patients (Rounds, Galinsky & Stevens 1991), and improves patient outcomes in relation to childbirth and mental and physical illness (Hardy, Richman & Rosenfeld 1991).

Though social support is often exhibited through particular actions, such as the provision of money or advice and guidance, these behaviors don’t necessarily represent the entire construct of social support. Social support also includes the provision of encouragement, commitment, acceptance, and emotional support. Sarason and his colleagues (Sarason, Sarason, & Pierce, 1990) point out that the most important component of social support is the degree to which individuals perceive that they will have access to social support. That is, in times of stress, are they surrounded by people who are concerned about them, appreciate them and are eager to help them when needed?
Rosenfeld and Richman (1997) have categorized the components of social support into eight different types: “listening support, emotional support, emotional challenge, reality confirmation support, task appreciation support, task challenge support, tangible assistance support and personal assistance support” (Rosenfeld & Richman 135-136). Listening support entails listening without offering opinions or recommendations, whereas emotional support offers consolidation and compassion while demonstrating support for the recipient. Emotional challenge, however, confronts the recipient to assess his or her beliefs, principles and emotions. Another form of social support, reality confirmation support, interprets others in a similar fashion as the recipients themselves and with similar viewpoints that verify the recipients’ outlook on life. Recognizing and showing approval for the recipients’ hard work is demonstrated through task appreciation support, while task challenge support is confronting the recipients’ state of mind with the purpose of inspiration and to guide him or her to increased motivation. Tangible assistance support provides the recipient with economic aid, goods or gifts, whereas personal assistance support offers the recipient assistance, such as completing a task or taking the recipient somewhere.

The buffering hypothesis has been offered as a mechanism to explain how social support can alleviate stress in an individual (Hardy, et al., 1991). This hypothesis suggests that social support mediates or buffers the effect of tension on an individual, and this ultimately influences the individual’s welfare. Under this hypothesis, at minimal levels of social support, the connection between stress and psychological and physiological welfare should be clear and direct, and as social support rises, the connection should diminish. Under circumstances of high support, the connection between tension and welfare should be absent (Hardy, Richman & Rosenfeld 1991).

Social support also includes “two forms of cognitions”. These include a “sense of support” and a “sense of acceptance” (Sarason et al., 1990, 120). The cognition of a “sense of support” is the attitude of the accessibility of others who are eager and capable of supplying support despite the sacrifices involved in order to give support. This may allow individuals to face traumatic circumstances that would have otherwise been impossible to overcome. The second cognition, a “sense of acceptance” is the view that others acknowledge who we are, which includes both our flaws and strengths and is
reinforced when we witness the support that others intend to give. This cognition encourages useful coping with requirements and obstacles and promotes the capabilities to use the chances available. The elements that are positively related to this cognition include: useful communication abilities, eagerness to investigate and take chances, self-confidence of coping with obstacles, low levels of apprehension, positive self-representation, anticipation of preferred results and a compassionate outlook of others.

As noted earlier, social support has been found to be an effective factor in the health field in promoting individual’s recovery from illness and in facilitating their rehabilitation regimen. It would also seem likely that social support would be useful in relation to athletes’ recovery from athletic injuries. The research corresponding to this link is reviewed in the following section.

Social Support and Recovery from Sport Injuries

During recovery from injury, those who are closest with the athlete, such as family and friends should be the primary agents in providing comfort rather than just an acquaintance, such as a doctor. That is, social support from people with whom the individual has an intimate relationship should constitute more of an influence, both constructive and harmful, on the individual’s welfare and physical condition than would support from distant relations (Bianco & Eklund 2001). Therefore, the research reviewed in this section primarily focuses on the impact of social support from individuals within the injured athletes’ social network (e.g., parents, coaches, teammates, friends, athletic trainers).

In one of the earliest studies on this topic, Rosenfeld, Richman & Hardy (1989) explored the availability of social support resources among athletes and the possible link between such social support and athletes’ level of stress. The subjects in this study were 78 men and 92 women collegiate athletes from a Division I University. A wide range of sports were represented in this study including: women’s soccer, field hockey, track and field, volleyball, gymnastics, cross country, men’s track and field, soccer, wrestling and cross country. The Support Functions Questionnaire (Pines, Aronson & Kafry 1981) was used to assess athletes’ perceptions of their social support status. This questionnaire provides the respondent with six forms of social support (listening, technical appreciation, technical challenge, emotional support, emotional challenge and shared
social reality). For each form of social support, the respondent provides: (a) names of people who have given them that type of support; (b) the social connection between the provider and the recipient (e.g., sister, teammate, coach); and (c) the athlete’s perceptions of the degree of support each individual has given (1 = low, 7 = high). This questionnaire, then, provides information about who gives social support to the athlete, the forms of social support that are given, and the athlete’s view of the quantity of the support given. In addition to the Support Functions Questionnaire, the researchers used the Tedium Questionnaire (Pines et al., 1981) to assess the degree of stress perceived by each athlete. Follow-up interviews were also conducted with 13 coaches and 13 athletes.

The results from this study (Rosenfeld et al., 1989) revealed that different individuals in the athletes’ social environment provided different types of support. Specifically, friends and occasionally teammates provided social support in the form of shared social reality. Coaches were most frequently recognized as providing technical challenge support and technical appreciation. Teammates were also perceived as offering technical challenge support, but, as noted earlier, they also were providing shared social reality support. Friends mainly supplied shared social reality support, listening support, and emotional support. In addition, friends were perceived to provide some technical appreciation support, though not as much as that provided by other individuals. Coaches were not perceived to supply listening support, emotional support, or shared social reality support. The researchers suggested that coaches did not provide that type of support to athletes because coaches wanted to maintain their position of authority and to prevent influencing team morale by singling out individual athletes for a more intimate relationship with the coach. Teammates were also not perceived to offer emotional support or emotional challenge support, possibly reflecting a team climate or atmosphere of competition between athletes for places on the team. Friends were not perceived to supply technical challenge support, probably because they lack the technical knowledge to do so. Parents also were not perceived to give technical challenge support, again possibly because of their lack of technical sport knowledge. Parents were also not perceived to provide shared social support, probably because of the absence in communication in the everyday lives with their children.
In regard to the connection between stress and social support, the results of this study (Rosenfeld et al., 1989) showed that athletes did perceive stress as a part of the athletic experience and did not appear to search for support to help cope with their stress. Most athletes reported that they coped with their stress without using other individuals. Athletes perceived stress related to sport as good, whereas stress unrelated to sport was perceived to be bad. The outcomes of sport and non-sport stress were perceived to be similar, but the incentive to find social support for non-athletic stress was less. Some gender differences in athlete responses were also found. Specifically, males who were high in stress and females who were low in stress described obtaining more technical appreciation support from their coaches than they did from other athletes. Females low in stress also obtained more listening support from friends than they did from other athletes. In regard to coach gender, male coaches in this study were viewed as providing less technical challenge support to males who were low in stress and females who were high in stress. This study was interesting in that it identified the individuals in the athletes’ social environment who did supply social support. However, this study was also unique in that it identified what types of social support were provided by different types of individuals.

Ford (1999) conducted a qualitative study designed to assess athletes’ reactions to injury therapy, their experiences of the damage the injury caused, and the support they needed to make their healing process easier. The participants in this study included two male and two female athletes who had recently experienced knee surgery to fix torn anterior cruciate ligaments. Semi-structured interviews were employed with questions focused on gaining an understanding about the role of social support in handling stress related to sport injuries. Analyses of this interview data indicated that injured athletes felt that their physical condition had diminished, and their feelings of sport success had been reduced as a consequence of their injury. These athletes also appeared to hold an inferior view of themselves, a damaged identity, and an alteration in social roles. However, social support that promoted involvement in club or team activities seemed to facilitate or maintain in athletes a feeling of participation that the injury had the ability to decrease. Thus, social support was helpful in the recovery from injury. Athletes’ views of themselves were impacted by their injuries, but the existence of support under the
conditions of encouragement and acceptance improved self-perception and created an optimistic outlook or frame of mind. These athletes reported that their connection with friends, teammates and medical personnel were strengthened throughout their healing process. These resources allowed them some security from the harmful effects of injury by increasing their positive self-perceptions, establishing personal feelings of being valued, raising the possibility that support is accessible if needed and establishing a diversion from the stresses involved with injury.

Johnston and Carroll (2000) conducted a study designed to examine the connection among coping, social support and commitment using a more developed measurement of social support. A secondary purpose of this study was to determine if there would be gender differences in coping methods used. Based on research in the health field, these researchers hypothesized that women would use more avoidance and emotion-oriented coping styles than would men. The participants for this study were recruited from National Health Service hospitals, community units or health centers and 36 private hospitals and physiotherapy clinics. Physiotherapists were requested to recruit male and female patients within the age range of 18 and 60. These participants had experienced serious acute musculoskeletal injuries including soft tissue injuries and fractures. The total number of participants included 55 men and 38 women with a mean age of 35.61. Twenty-five patients described themselves as non-athletes, with the remaining participants indicating some involvement in sport activities.

The results of this study (Johnston & Carroll, 2000) showed that there was not one specific coping method favored over another. All coping methods, with the exception of seeking alternative rewards, were observed to decline in use over the rehabilitation period. Instead of changing their coping methods over the recovery time, the participants seemed to use less of all techniques. Participants’ perceptions of the amount of social support accessible to them did not differ over time. The participants reported higher levels of satisfaction with the informational and emotional support they got in the middle and at the conclusion of their rehabilitation than they did at the beginning. Those participants who had a higher level of involvement in sport and exercise before their injury were more likely to accept a guidance and support seeking coping method. Even though they required more support, they appeared to obtain sufficient amounts and were
pleased with the support they receive. Contentment with practical and emotional support and the acceptance of a problem-solving coping method were related with increased levels of physiotherapist-rated commitment, but the acceptance of an emotional discharge coping method was related to decreased levels of physiotherapist-rated commitment. Although the intention for this study was to identify gender differences, no significant differences were reported on the coping subscales and on the variables of “age, number of hours of sport involvement before injury, self-rated severity, physiotherapist-rated severity, and length of rehabilitation” (298). However, females were considerably more pleased that were males with the practical and emotional support they received at the start and the practical support they received at the conclusion of rehabilitation.

Hardy, Richman, Rosenfeld (1991) explored the function of social support in relation to life stressors and injury. A secondary focus was to test both direct and buffering models. The participants included 170 male and female collegiate athletes from a Division I University and representing a wide range of sports. The Support Functions Questionnaire (SFQ) (Pines et. al, 1981) was used to examine the types of support athletes received and from whom they received such support. The Athletic Life Experience Survey (ALES) (Passer & Seese 1983) was also used, which was an alteration of the Life Experience Survey. Participants ranked 70 life events on a +3 to -3 scale. This survey provided scores corresponding with “total life change (TLC), negative life change (NLC), positive life change (PLC) and object loss change (OLC)” (131). Injury data were acquired from team injury logbooks that contained the date and location of injury, an assessment from an athletic trainer, analysis from the team doctor, date of returning to sport and treatment plan.

Study analyses (Hardy et al., 1991) revealed a connection between life trauma and numerous aspects of social support, which predicted the regularity of injury within the college male athletic population. Both direct and buffering models of social support were verified through this study, in which the direct model was confirmed for “total life change and shared social reality” (136). The regularity of injury rose as the level of TLC as well as the number of people present in the situation (who could provide social reality support) rose. Total life change and shared social reality seem to be able to create a
diversion and/or raise the physiological arousal of the athlete. The authors conclude that shared social reality support given to male athletes may have provided a diversion from their athletics, thus strengthening performance motivation/anxiety and enhancing the risk of injury. The buffer-effect model weakened the number of injuries with regard to harmful life events and emotional challenge support. As the total number of injuries diminished, so did the amount of harmful life events. However, as the accessibility of multiple support providers improved, the satisfaction of emotional challenge support increased as well.

Gould, Udry, Bridges & Beck (1997) explored the sources of stress experienced by elite skiers who were recovering from ski injuries that had ended their competitive season. A qualitative methodology was used for this study to allow the participants to identify a wide range of stresses and the causes for such stresses that could delay recovery from the injury. As part of the study methodology, the researchers also proposed to look at the similarities and differences between the skiers who successfully recovered from their injuries and those who did not. The study sample consisted of all U.S. ski team male and female alpine and freestyle skiers who had experienced season-ending injuries across four competitive seasons. A season-ending injury was operationally defined as an injury that caused a skier to no longer participate during the ski-racing season for at least 3 months. A majority of the injuries were knee injuries (71%); followed by back injuries (10%), leg and/or hip injuries (14%) and head injury (5%).

The results of this study (Gould et al., 1997) showed that only 33% of the participants actually described their injury as stressful when they were directly asked that question. However, subject interview responses indicated a number of sources of stress related to the injury. These included: questioning if the injury could have been avoided (24%), dealing with the losses related to their injury (52.3%), comparing themselves to others (33%), maintaining or losing their position on the team (28.6%), and fear of re-injury (57.1%). In addition, in the final phase of recovery, 38.1% of them worried as to whether they were prepared mentally and emotionally to ski again. The social issues that caused stress revolved around negative relations with other people during the rehabilitation process, specifically the lack of interaction (38%). Physical concerns were
identified by 76% of injured athletes and 71.4% reported medical and rehabilitation concerns as a source of stress and 28.6% of athletes mentioned financial concerns, followed by 23.8% experiencing career concerns. Those athletes who did not heal successfully from their injuries described less attention/empathy and more negative relations with others. In addition, these athletes exhibited increased concern with physical worries such as future poor performance and being sedentary.

Green and Weinberg (2001) examined the correlation between athletic identity, coping skills, social support and the psychological effect of injury in a sample of recreational sport participants. These researchers cited previous research that has found that athletic identity was significantly linked to depression following injury, with individuals higher in athletic identity responding more negatively to injury than those lower in athletic identity. Furthermore, coping methods seem to protect athletes from negative circumstances, which can lead to a higher level of resiliency from injury and more commitment to rehabilitation. Finally, social support can impact athletes' emotional responses to injury. Based on the research from these disparate areas, Green and Weinberg specified three hypotheses. These included: “Individuals with higher athletic identity will show a more negative psychological reaction to injury than individuals lower in athletic identity; the higher an individual’s coping skills and social support, the less negative the psychological reaction to injury and effect on physical self-esteem; individuals with higher athletic identity, lower social support and lower coping skills will show the most negative psychological reaction to injury (total mood disturbance) and lowest levels of physical self-esteem” (47).

The sample for this study (Green & Weinberg, 2001) consisted of thirty male and females who were recruited from sports medicine, physical therapy and orthopedic centers. The majority of the participants were Caucasian (93%) with 6% being African American. The categories of types of injuries included: knee (50%), “other” which consisted of 26.7% (foot injuries, broken tibia and fibula, herniated disk in the back and broken arm), shoulder (10%), hip (6.7%), and ankle (3%). Participants suffered from injuries that prevented them from engaging in physical activity or sport for 30 minutes of physical activity during at least six weeks. The instruments used in this study included a demographic questionnaire, the Athletic Identity Measurement Scale (AIMS) (Brewer,
Van Raalte & Linder 1993) which measures the degree to which an individual identifies with the role of the athlete; the Athletic Coping Skills Inventory (ACSI) (Smith, Scott & Wiese 1990), which assesses self-perceived adequacy of individuals’ broad coping strategies in a large sport environment; the Profile of Mood States (POMS) (McNair, Lorr & Droppleman 1971) which measures individuals’ temporal affective states; the Physical Self-Perception Profile (PSPP) (Fox & Corbin 1989), which assesses athletes’ physical self-perceptions from a multidimensional viewpoint; and the Social Support Questionnaire (SSQ) (Sarason et. al 1983), which looks at the perceived amount of social support a person has and the perceived approval of, or satisfaction with, the support that is accessible to her or him.

The results of this study (Green & Weinberg, 2001) showed that individuals with higher levels of athletic identity were more concerned about their physical training than were individuals with lower levels of athletic identity. No significant relationship was found between the amount of social support or the perceived approval of that support and the level of mood disturbance exhibited by the participants. Thus, the relationship between athletic identity, coping skills and social support and injured athletes’ mood states did not appear to be significant. In addition, social support and coping skills were not linked to physical self-esteem. A limitation of this study was the small sample size. In particular, this small sample size prevented the authors from conducting more sophisticated statistical procedures to examine the hypothesized relationships.

Udry, Gould, Bridges & Tuffy (1997) further examined the relationship between athletic injury and social support. They specifically conducted this study to investigate the possibility that social support can be perceived both negatively and positively by injured athletes. The participants in this study consisted of 21 US Ski team members who had experienced season ending injuries across four seasons. Season-ending injuries were defined as those that restricted skiers from finishing the season or prevented them from skiing for at least 3 months. The injuries experienced included knee (71%), back (14%) and head (5%). The average age of the participants was 23.9, and there were eleven male and ten female participants. This study used qualitative interviews, which took approximately 60-90 minutes to conduct.
The results of the study analyses (Udry et al., 1997) revealed that injured athletes who experienced alterations in their health were more apt to depend on others and were able to anticipate the support they would obtain. During their injury recovery, athletes perceived their teammates as “like family.” Positive roles of family and teammates were reported by 100% of the athletes. Emotional support and understanding from family, friends, and teammates were revealed as positive element themes by 81% of athletes. Motivational support, another theme, was mentioned by 47.6% of the athletes, and this type of support was given by teammates who were injured simultaneously and experienced rehabilitation together. Kept in contact, as a theme, was reported by 43% as a significant positive component of interactions with family, friends and teammates. The athletes also cited some negative social support influences, with 14.4% reporting themes associated with lack of contact or disconnection from social support providers as a consequence of the injury.

Another interesting finding from this study (Udry et al., 1997) was that a fairly large number of the athletes (66.6%) reported coaches as a negative influence during the recovery process. The most common theme (47.6%) reported by athletes of their perceived interactions with coaches was “distant”. Another theme that emerged was that athletes perceived their coaches to be insensitive to their injury. Another subset of athletes (29%) perceived that their coach believed that injured athletes were “bothersome” (385). The athletes also recognized that coaches’ intentions with regard to injured athletes’ rehabilitation were good, but that the coaches did not offer sufficient information throughout the recovery process (i.e., a theme labeled inappropriate/insufficient guidance). Coaches’ lack of belief in the injured athlete, another theme, was reported by 24% of the athletes. Within this theme, athletes perceived that their coach either did not think the injured athlete desired to come back or that the athlete was incapable of making a comeback. Although coaches generally were perceived as exerting a negative impact on injured athletes, coaches were also perceived to provide some positive influence, at least as perceived by 57% of the athletes. One of these positive influences was when coaches were perceived to stay emotionally connected to the injured athlete by maintaining communication throughout the recovery process. Interestingly, the athletes in this study showed much variability in how
frequently they thought coaches should remain in contact with injured athletes on their team.

Johnston and Carroll (1998) conducted a study designed to obtain a detailed description of social support in a specific situation. The participants in this study had been involved in an earlier qualitative study and were asked to take part in a second interview about social support. A total of twelve of the sixteen participants agreed and were interviewed using a semi-structured format. Specifically, the athletes were provided with a list and a description of eight types of social support. These types included: shared social reality, technical challenge, technical appreciation, listening support, emotional comfort, emotional challenge, material assistance and practical assistance. Athletes were asked questions regarding the kind, amount, and source of social support they had received. All of these participants had recently experienced a sport-related injury.

The results of this study (Johnston & Carroll, 1998) indicated changes over the injury recovery period in athletes’ perceptions of the amount and kind of social support that they received. Specifically, emotional and practical forms of support were perceived to decline over time, whereas technical appreciation and technical challenge support were perceived to increase significantly over the recovery time. Some differences were also found over time in the individuals who provided social support for the injured athletes. At the start of the rehabilitation process, the main providers of informational support were other injured athletes. Medical personnel, specifically physiotherapists, were also considered as sources for this type of support. The purpose of this type of support is to measure and recognize the improvements that injured athletes make during the rehabilitation process. In the middle of rehabilitation, informational support involved enhancing athletes’ physical fitness while injured. This type of support was provided by coaches, other injured athletes and sporting friends. At the end of recovery, informational support was mainly supplied by physiotherapists, teammates and coaches. In addition, at the end of rehabilitation and during return to sport, athletes identified informational support as particularly important, with physiotherapists and coaches being perceived as the ideal providers. When athletes return to sport, positive feedback about their performance as provided by teammates and coaches may be needed as a good source of
encouragement and thus allow injured athletes to re-gain confidence in their physical abilities.

Johnston and Carroll (1998) also looked at emotional support. Emotional support can serve three functions: assisting the athletes in recognizing the seriousness of the injury for both recurring and minor injuries, assisting the athlete in selecting treatment options and assisting the athlete in helping them to rationalize their thoughts and feelings. At the beginning of rehabilitation, injured athletes perceived that emotional support was primarily given by friends, family other injured athletes, coaches and medical personnel. The central, or most important, providers of emotional support were usually those who did not have expert knowledge of the injury, but have an intimate bond with the injured athlete (e.g., friends and family). These central providers were usually people who were respected by the athlete. The degree of emotional support needed by the injured athlete appeared to depend on the seriousness of the injury, with more serious injuries requiring more support in the beginning stages. Male athletes with minor injuries did not see emotional support as important and exhibited a tendency to talk to a variety of people about their injury. Females with more serious injuries believed that emotional support was important to help them justify their thoughts and feelings. The perception of the access of emotional support seemed to lessen the significance (i.e., those who perceived more availability of emotional support also perceived the support to be less significant). During the middle stages of rehabilitation, the significance and perceived necessity of emotional support was reduced. The athletes at this stage indicated that anyone could provide emotional support, though the most common providers were friends and family. For athletes who experienced more serious injuries, emotional support was important during the middle phases of rehabilitation when they became annoyed with their recovery process. Some athletes believed that high amounts of emotional support during the middle stages of rehabilitation could actually be damaging because it could possibly result in athletes becoming preoccupied with their injuries and thus lead to a lack of concern about, or commitment to, the rehabilitation process. The participants indicated that towards the end of rehabilitation, emotional support was not necessary. The main purpose of emotional support during this stage was to encourage the athlete not to return
to sport too soon. This support was mainly perceived to be given by coaches, physiotherapists and friends.

Another type of social support found in this study (Johnston & Carroll, 1998) practical support, was typically perceived as very important at the start of the rehabilitation time, especially by athletes who were severely injured and were in casts or were using crutches. The central providers of this type of support were those with whom the athletes lived. Those who experienced minor injuries did not regard practical support as valuable. Material assistance, such as gifts and money expenses, were more typically provided to those athletes whose injury put them in the hospital. At the middle stages of rehabilitation, practical support was not given or was perceived as unnecessary.

Udry (1997) explored the relationship between social support and coping among injured athletes following knee surgery. The research questions involved with this study include: “What coping strategies are used by injured athletes during rehabilitation following surgery? Are there significant changes in the use of coping strategies, and athletes’ social support levels during the rehabilitation process? Are coping strategies and social support predictive of rehabilitation adherence levels?” (73). The participants involved in this study were at least 16 years or older and had experienced anterior cruciate ligament (ACL) surgery with the intent of returning to sport and physical activity. A total of 25 participants were involved with this study with an average age of 27.9 years. To assess participants’ coping strategies, Udry administered the Coping with Health and Injury Problems (CHIP) Scale (Endler & Parker, 1992). This inventory consists of four subscales, each representing a different type of coping method: instrumental, negative emotion, distraction, and palliative coping. The Profile of Mood States (POMS) (Shacham 1983) was also used to measure the athletes’ emotional responses to their injuries with the Total Mood Disturbance scale the only score used in this study. To assess social support, the Social Support Inventory (SSI) (Brown, Alpert, Lent, Hunt & Brady 1988; Brown, Brady, Lent, Wolfert & Hall 1987) was used which measures athletes’ perceptions of the sufficiency of their social support networks. Adherence was defined as “the ratio of appointment actually attended compared to the number of appointments recommended by the sports medicine provider” (79). Adherence was only evaluated during the first 12 weeks of rehabilitation.
The results from this study (Udry, 1997) indicated that instrumental coping was the most frequently used coping strategy throughout all stages of evaluation. However, important time changes were found in athletes’ use of the different coping methods. During the first 3 weeks post surgery the athletes increased their use of all types of coping, and over time, injury related stress decreased and participants reacted by using less of all types of coping. In contrast, no significant changes over the recovery process were found in injured athletes’ satisfaction with their social support network. Finally, the results revealed partial support concerning the researchers’ hypotheses that instrumental coping would be positively related to more commitment to rehabilitation. It seems that instrumental coping is related to elevated levels of rehabilitation compliance, and palliative coping was related to lesser rehabilitation adherence.

Nixon (1994a) examined the role of social pressure, social support and search for assistance in regards to perceived pain and injury response in collegiate sports. Pain and injuries are expected for athletes in aggressive sport situations, but athletes vary in their reactions to both pain and injuries. Thus, the focus of this study was to investigate how athletes manage pain and injury within “interaction networks with significant others in their campus athletic subculture” (341). These interaction networks are termed “interactive sports nets,” and include coaches, athletic trainers and teammates. The main emphasis in this study was on examination of the social factors that influence the readiness of athletes to speak to significant others about pain and injuries, the probability that athletes will go to these significant others for assistance or support with their athletic injuries, and the probability that they will stay away from others when they are injured or attempt to conceal their pain and injuries from them. The questions involved in this study were: How do messages of pressure or support from significant others in the interactive sports net of college athletes affect their support seeking aversion concerning pain and injuries? How do gender and race affect the support seeking and aversion of college athletes concerning pain and injuries? How do status in a sport and the structure of the sport affect the support seeking and aversion of college athletes concerning pain and injuries?

Nixon (1994a) assessed these issues by administering questionnaires that he developed specifically for this study based on a previous (Nixon, 1993) study he had
conducted on risk, pain, and injury within social contexts. The participants in the 1994 study were from a Division I university, and all were either presently competing or had competed in a collegiate sport (N = 195 athletes). A total of 156 athletes in the sample had suffered from significant injuries that caused them to miss either five or more consecutive days or practice or to miss at least one competitive event.

Analyses of the responses from the completed questionnaires (Nixon, 1994a) revealed a number of interesting findings regarding athletes’ tendencies to seek emotional support for pain and injury they experienced in the collegiate sport context. First, athletes in this study who stayed away from athletic trainers (i.e., athletes who indicated they did not seek support or help from their athletic trainers) were those who were experiencing pressure from teammates to play while injured. These results seem to “pit” the opinion and support of the athletic trainer against that of teammates who want their injured teammate to keep playing. Other findings indicated that athletes who did not seek support for pain and injury from their coaches (i.e., who stayed away from their coaches) and/or who perceived their coaches to “push” athletes to play when injured perceived their athletic trainers to be very understanding and sought their support during times of pain and injury. This last finding was particularly true for athletes who were non-white. Individual sport athletes tended to be more likely than were team sport athletes to speak to their teammates about pain and injuries. But, athletes tended to conceal their pain and injuries from teammates in sport contexts where the perceived norm was to compete while injured. Again, this tendency was particularly strong for athletes who were non-white.

The results also indicated that more than 50% of athletes reported that they had not been coerced by coaches or teammates to compete while injured. Approximately two-thirds of the athletes indicated that they had avoided coaches or attempted to conceal their pain or injuries from coaches when they were hurt, and about half attempted to conceal this from trainers or teammates. More than 40% indicated that they experienced pressure from teammates to play injured, and about 50% revealed they experienced this pressure from coaches. When athletes identified athletic trainers as more understanding, they typically stayed away from their coaches. When trainers push athletes to play hurt, they may weaken trust and belief because the probability for athletes to look to coaches for encouragement is more likely. In general, the results of this study indicated that college
athletes are more apt to trust team trainers and doctors than they do coaches or teammates. That is, 75% of the study sample disagreed with the statement that team trainers and doctors are more concerned about the desires of the team than they are about the desires and emotions of the athletes with whom they are working. Furthermore, 83% of the athletes agreed that injured athletes should trust team doctors and trainers.

Interestingly, in this study (Nixon, 1994a), no gender or scholarship level differences were found in regard to athletes’ perceptions of the sport climate for pain and injury. This study was particularly interesting in that it attempted to describe or identify the type of team climate that individuals in the athletic context (e.g., coaches, athletic trainers, sports medicine personnel, teammates) create with regard to sport injury and pain. Furthermore, although the results of this study were based on a questionnaire that was developed specifically for this study, some interesting information regarding athletes’ perceptions of sport pain and injury were obtained, including some possible differences in the perceptions of athletes from different ethnic and racial backgrounds. Certainly, further research on this topic is necessary.

Wiese, Weiss & Yukelson (1991) explored the psychological nature of injury rehabilitation from the perspective of athletic trainers. The participants of this study were 115 individuals with a mean age of 27.2 years who were attending a large regional athletic trainers meeting. The questionnaire used in this study consisted of open-ended questions allowing the trainers to list characteristics of athletes who had and had not managed their injury successfully, to record the methods that helped psychological coping throughout rehabilitation, and to describe the importance of athletic trainers knowing about the psychological techniques when working with injured athletes.

The results of this study (Wiese et al., 1991) demonstrated that athletic trainers believed that the important characteristics that differentiate the athletes who successfully managed their injury and those who did not included “willingness to listen to the athletic trainer, positive attitude, intrinsic motivation, willingness to learn about the injury and rehabilitation techniques, determination/mental toughness, high self-esteem/confidence, use of goal setting and emotional maturity” (20). In contrast, athletic trainers rated “social support from parents and peers, high pain tolerance, high sport ability and high academic ability” (20) as less important to the rehabilitation process. Athletic trainers ranked
certain strategies as important for injured athletes to have or get in order to help them cope with their sport injury. These strategies included: “interpersonal communication skills of the trainer, positive reinforcement by the trainer, coach support for the athlete, keeping the athlete involved with the team, a realistic timeline to full recovery, a focus on short term goals, encouraging positive self-thoughts, the athlete’s understanding of the rehabilitation strategy and a variety of rehabilitation exercises” (20). The athletic trainer participants rated “athlete’s understanding of injury mechanisms, relaxation techniques and visualization” as less important (20). When the participants responded to questions concerning the importance of athletic trainers possessing knowledge of these psychological strategies, they ranked “using a positive and sincere communication style, setting realistic goals, encouraging positive self-thoughts, understanding individual motivation, enhancing self-confidence, understanding stress/anxiety and reducing depression” as important (20). The strategies that were not seen as important were “enhancing listening skills, teaching concentration, relaxation, emotional control and mental imagery skills” (20). Although this study did not specifically address the issue of social support, the results do provide some information regarding techniques, strategies, and knowledges that athletic trainers may find useful in providing social, emotional, and technical support to injured athletes in their care.

In summary, then, the research cited in this section shows that the amount and quality of social support that athletes receive is important in modifying their psychological and emotional responses to injury and in increasing or facilitating their adherence to their rehabilitation program. Such social support can and does come from a variety of individuals in the athletes’ social network. These agents can include teammates, athletic trainers, family members, friends and coaches. Given the central role that coaches play in the lives of athletes, it would seem reasonable to believe that the coaches’ role in the social support process would be particularly important. However, very little research has been conducted to examine the role of the coach in the athletic injury experience. For the most part, the coach’s role, as a social agent, has been examined in combination with other social agents. The current proposed study was designed to focus specifically on the coach and her/his reactions and responses to athletic
injury. In the next section, the few studies that have been conducted to investigate the coaches’ role in regard to athletic injuries are reviewed.

Coaching Behavior in Relation to Athletic Injuries

In one of the earliest studies conducted to examine coaches’ behavior in relation to their athletes’ sport injuries, Crossman, Jamieson & Hume (1990) included not only coaches, but also athletes and medical professionals to examine how different individuals in the sport environment perceive and interpret the consequences of athletic injury. The participants involved in this study consisted of 9 male and 26 female athletes with a mean age of 20.2. A total of 25 athletes were involved at the recreational level, which was referred to as a lower level in sport, and 10 athletes were involved at the provincial, national or international level, referred to as higher level athletes. Athletes who were recruited for participation in this study had received treatment at a sports medicine clinic for injuries that occurred as a consequence of physical activity. A questionnaire was administered to injured athletes while they were waiting to go through treatment. The questionnaire assessed the athletes’ interpretation of their injury as well as their perceptions of the consequences of the injury. A similar version of this questionnaire was also administered to athletes’ coaches and to medical experts who were involved with the injury.

The responses from the questionnaires were analyzed to compare the perceptions of different individuals (athletes, coaches, and medical professionals) regarding athletic injuries. Athletes ranked the “disruptive impact” of the injury much lower than did the medical professionals and also judged the temporary consequences of the injury lower than did the medical professionals. Coaches ranked the severity of the injury greater than did the medical professionals and judged the “disruptive impact” higher for injuries to more skilled athletes as compared to less skilled athletes. Although the results of this study were limited in terms of sample size and methodological sophistication, the results do show differences between coaches, athletes, and medical professionals in their interpretation and evaluation of the injury and its consequences.

In a more recent study, Robbins and Rosenfeld (2001) focused on the social support provided to injured athletes by head coaches, assistant coaches and athletic trainers. Participants in this study were 35 Division I athletes from a variety of sports
who had experienced an athletic injury that was classified as minor to severe. These athletes were asked to complete the Social Support Survey (Richman, Rosenfeld & Hardy 1993) that assessed the types of social support provided by each of the individuals under study (i.e., head coach, assistant coach, and athletic trainer), the degree to which the athlete was satisfied with each type of social support, and how important the athlete thought each type of social support was for their rehabilitation. In general, the results of this study indicated that injured athletes were more satisfied with the type and amount of social support they received from their athletic trainers than the social support they received from their head or assistant coaches. Furthermore, athletes indicated that the listening support and task appreciation support they received from their athletic trainers contributed significantly more to their successful rehabilitation than did any type of support from their coaches.

Nixon (1994b) examined risk of injury and pain from the coaches’ perspective. He began this study by noting that sport participation takes place in a cultural setting that values risk and regularizes pain, injury, and playing hurt. The purpose of his study was to look specifically at the attitudes of college coaches regarding pain and injury in their athletes. Given gender role stereotypes and behaviors, Nixon also proposed to compare the attitudes, values, and beliefs of male and female collegiate coaches. Participants in this study included 26 coaches of men’s and women’s sport teams at a Division I university. The methodological procedures involved the development of a set of statements about risk, pain and injury in college sports. These statements were obtained through a content analysis of injury-related articles in Sports Illustrated. The set of statements was then administered to all coaches, who were asked to rate each statement in terms of how much they agreed with it.

The results from this study (Nixon, 1994b) indicated that the majority of coaches (53%) strongly endorsed the following statements: athletes should push themselves to the limit; injured athletes should trust team doctors; trainers, coaches, and other officials should protect athletes from injuries. Other items generally supported by the coaches included: athletes have to accept risks; athletes should tell the truth when they say they cannot play hurt; athletes deserve respect when they plan with pain and injury; athletes
have difficulty with quitting sport even after serious injuries; athletes are the only ones who understand what it is like to play hurt; athletes cannot worry about pain and injury.

With regard to the notion of playing hurt, the results of this study (Nixon, 1994b) showed that two-thirds of the coaches disagreed that athletes should do so, but these coaches also thought that injured athletes should be pushed when necessary. The items/statements that most coaches (90%) most disagreed with included the following: athletes should not pay attention to pain and try to be tough, athletes are not concerned about the results of playing hurt; injured athlete should fault themselves; winning is the most important; coaches are only concerned with healthy athletes; and trainers and physicians think about the whole team’s wellbeing and not individual athletes. Some gender differences were found. Specifically, female coaches were more likely than were their male counterparts to agree with the statement “athletes who tolerate and play with pain earn respect”. Coaches of female teams were more likely than coaches of male teams to agree that athletes returning to sport after an injury have something to prove and that playing hurt shows bravery and character. Coaches of male teams were more likely than were coaches of female teams to talk to other coaches about injuries and pain. Although this research study was descriptive in nature and also relied on coaches’ perceptions of their own attitudes and behaviors, some interesting information was obtained about college coaches’ perceptions of pain and injury. Certainly, more in-depth research on this topic would be useful.

Vergeer & Hogg (1999) explored the decisions made by gymnastics coaches about the involvement of injured athletes in competition. Injured athletes’ transition back to sport participation can be difficult, and coaches may be important people in helping the injured athlete make a successful transition. The first purpose of this study was to describe coaches’ general decision making strategies related to four situational factors. The second purpose was to identify which decision strategies were most pertinent among a collection of coaches. The sample consisted of 64 coaches who were involved with 29 competitive gymnastics clubs in Alberta, Canada. The data collection consisted of telephone interviews. A preliminary questionnaire was pilot tested with 6 former gymnastics coaches, and small modifications were made. The study interviews lasted anywhere from 20 to 80 minutes and were taped and transcribed. The questionnaire
incorporated 16 imaginary situations about an athlete who had experienced an injury before a competition, and respondents were presented with a series of open and closed questions about their decision to allow their athlete to compete in each of the situations. Each situation varied in terms of four conditions: the importance of the competition; the athlete’s age; the athlete’s ability level; and the severity of the injury. In response to each situation, the coaches reported on a scale of 0-10 of how probable that they would allow the athlete to compete, 0 meaning highly unlikely to 10, highly likely.

The results of this study (Vergeer & Hogg, 1999) revealed that the four conditions (i.e., the importance of the competition, the athlete’s age, the athlete’s ability level, and the severity of the injury) significantly affected the coaches’ decision as to whether or not to allow that athlete to compete. The probability of coaches allowing the athlete to compete in qualifying meets was higher for athletes with more ability. In regard to those athletes with serious injuries and who were young in age there was no difference in coaches’ decision-making regarding average and more skilled athletes. At invitational tournaments, the possibility of competing was the same for both average and more skilled athletes. The possibility of allowing the athlete to compete in qualifying events was more likely for athletes who were more skilled. Overall, the combination of elevated competition significance, the athlete’s age and ability level, and more minor injuries led to an increased probability of competing. The coaches revealed that competing in a qualifying meet was not of value for an average skilled athlete, but allowing a better athlete the opportunity to compete was important. Competing in a tournament that was of no value was considered as not worth the risk.

Additional analyses were conducted in this study (Vergeer & Hogg, 1999) to identify categories or clusters of coaches who exhibit varying perceptions of allowing the athlete to return to competition. One cluster of coaches was reluctant to allow an injured athlete to participate in competition, and most coaches in this group reported low scores for each of the situations (i.e., not willing to allow the injured athlete to compete no matter what the situation was). These coaches did pay attention to, or at least consider, the four limits of age, ability, meet importance and injury severity. However, none of these conditions significantly influenced the coach’s decision to not allow the athlete to
compete. That is, even a moderate level of injury severity was perceived as serious enough to these coaches to prevent the athlete from competing.

In contrast, in the second cluster (Vergeer & Hogg, 1999), coaches’ decisions were impacted by the seriousness of the injury and the importance of the competition. If the injury was serious, competing was not likely in most cases. If, however, the injury was moderate, competing was possible in most circumstances. If the athlete was very skilled, competition was very probable despite the athlete’s age. In general, these coaches were more apt to allow the athlete to compete.

Overall, then, the coaches in the first cluster (Vergeer & Hogg, 1999) expressed a more cautious attitude regarding their decision to allow the injured athlete to compete. They, as a group, concentrated on the dangers of the injury. These coaches also used fewer considerations than the coaches in the second cluster in making their decision regarding the athlete competing (i.e., they used a more simple decision style). In contrast, the coaches in the second cluster took into account the athlete’s personality and willingness to compete in making their own decision to allow or not allow the athlete to compete. These coaches also were more apt to minimize the dangers of competing with an injury and also noted the values forced on them by the structure of sport. As this study suggests, the choices coaches make about injured athletes being ready to return to competition are influenced by a number of situational factors. Furthermore, this study clearly shows that coaches differ considerably from each other in their perceptions of injured athletes and in the decisions they make about when injured athletes should be ready to return.

In summary, the results of the few research studies described in this section, combined with the results of the social support studies reviewed in the previous section, do suggest that coaches’ attitudes and behaviors may have a significant effect on the psychological, emotional and behavioral responses of the injured athletes. However, it is also clear that relatively little research has been conducted to actually identify the particular coaching attitudes, beliefs and behaviors that may characterize coaches’ response to athletic injuries. Thus, the first purpose of the current purposed research project is to identify, describe and measure athletes’ perceptions of the attitudes and behaviors that their coaches exhibit to injured athletes on their team.
The second purpose of this proposed study is to identify the particular coaching leadership styles that are related to, or can predict, individual coaches’ behavioral responses to their injured athletes. This second purpose is based on the research cited in the previous sections of this chapter that suggest that coaches differ from each other in their attitudes and behaviors towards injured athletes. That is, some coaches do provide positive and socially supportive behaviors to athletes on their team who get injured. In contrast, other coaches exhibit more negative attitudes and behaviors.

One factor that may differentiate the socially supportive coaches from the non-supportive coaches is the type of motivational climate they tend to create within the team. Coaches who create a mastery-oriented or task involving team climate value skill development, believe that the process is more important than the outcome, show value for all players on their team, and view performance mistakes as opportunities for learning. In contrast, coaches who create a performance oriented or ego-involving team climate pit individual players on the team against each other, punish athletes for performance mistakes, and show greatest value for the best players on their team while ignoring others.

Over the last 15-20 years, a considerable amount of research has been conducted to examine the effects of the two types of coach-initiated climates on athletes’ performance and psychological response (see recent reviews by Duda, 2001; Horn, in press; Ntoumanis & Biddle, 1999). The results of these studies provide consistent support for the facilitative effects of a mastery or task—involving climate on athletes’ perceptions of competence, self-confidence, success expectancy and intrinsic motivation. In contrast, a performance-oriented or ego-involving climate has been predictive of higher levels of anxiety and extrinsic forms of motivation. In reviewing this research, Duda (2001) recommended that further research needs to be conducted to examine if and how the coach-initiated motivational climate might affect athletes’ physical health and well-being. Subsequently, Duda & Reinboth did conduct two studies on this topic.

In the first of the two studies, Reinboth & Duda (2004) examined the motivational environment in relation to athletes’ perceived ability and mental well-being. The participants included two hundred and sixty five British teenager male soccer and cricket athletes. To assess players’ views of the current motivational climate created by
their coaches in practice and competitive events, the Perceived Motivational Climate in Sport Questionnaire-2 (PMCSQ-2 (Newton, Duda, & Yin, 2000) was given. This questionnaire contains 33 items divided into two higher ordered factors, task and ego oriented climates. As noted before, a task-oriented team climate is created by coaches who focus on skill learning and improvement rather than outcome, who show value for all players on their team, and who consider performance errors as opportunities to learn and improve. In contrast, an ego-oriented team climate is created by coaches who punish athletes for performance errors, focus on outcome rather than skill development, and who clearly place value on the most proficient athletes on the team while ignoring others. In addition to the PMCSQ-2, the researchers also used other questionnaires to measure athletes’ self-esteem and perceived sport ability. Finally, to measure athletes’ level of emotional and physical well-being, five items from the emotional/physical exhaustion subscale of the Athlete Burnout Measure (ABM) (Raedeke & Smith 2001) were used. To provide a measure of athletes’ physical health and well-being, participants were asked to complete a physical symptoms checklist that required them to report the number and type of physical ailments that they had experienced over the past two weeks.

Correlational and regression analyses of the obtained data from this study (Reinboth & Duda, 2004) indicated a strong link between athletes’ perceptions of their team’s motivational climate and their physical and emotional health. Specifically, athletes who perceived that their coaches created a highly ego-involving climate scored significantly higher on emotional and physical exhaustion and also exhibited a higher number of physical ailments experienced over the previous two weeks. In contrast, athletes’ perceptions of the degree to which their coaches created a task-oriented motivational climate were negatively related to their ratings of physical and emotional exhaustion and physical ailments.

The findings from this study (Reinboth & Duda, 2004) clearly indicate that the type of motivational climate that coaches create on their team is related to their athletes’ mental and physical well-being. As a follow-up to this study, Reinboth & Duda (2006) conducted a more longitudinal study to test the relationship between athletes’ perceptions of the coach-created motivational climate and athletes’ level of intrinsic motivation and physical and emotional well-being. The participants involved with this study included
128 athletes from a university in England who participated in two data collections over a five-month period. The first data collection took place during the first six to eight weeks of the competitive season, and the second data collection took place during the last several weeks of the season. The athletes in this study had been involved in their sport for an average of five years and participated in sports ranging from football, rugby, netball, lacrosse and hockey. Data collection procedures involved the administration of several self-report questionnaires. The PMCSQ-2 was again selected to measure the coach-created motivational team climate. The Subjective Vitality Scale (SVS) (Ryan & Frederick, 1997) was used to measure the extent to which athletes feel physically and mentally aware during participation in sport. Other question/items were selected or developed to measure athletes’ level of intrinsic motivation, perceived autonomy, competence, and relatedness. Athletes’ physical well-being was measured through a 9-item physical checklist, in which the athletes indicated the extent to which they experienced these symptoms over the past two weeks.

The study results (Reinboth & Duda, 2006) revealed that the coaches’ creation of a task-oriented team climate was predictive of increases over the season in athletes’ perceptions of autonomy, competence, and relatedness. Such increases in athletes’ self-perceptions were, in turn, predictive of increases in athletes’ level of intrinsic motivation. In contrast, a coach-created ego-oriented team climate was negatively linked to athletes’ perceptions of relatedness and their levels of intrinsic motivation. Furthermore, a coach-created task-oriented motivational climate was predictive of increases in athletes’ perceptions of their vitality (i.e. perceived physical and mental vigor and alertness).

Although the Reinboth & Duda (2004, 2006) studies did not directly assess the link between the coach initiated motivational team climate and coaches’ attitudes and behaviors towards injured athletes on the team, such a link would seem likely. That is, a performance oriented, or ego involving team climate has been defined as a climate in which the coach emphasizes intra team rivalry (i.e., the pitting of athletes against each other), punishes performance errors, and focuses most of her or his time and attention on those team members who are performing well. Thus, it would make sense that such coaches would perceive injured athletes as liabilities to team success. Such coaches, then, might treat injured athletes as non-entities. In contrast, in a mastery oriented or task
involving team climate, the coach emphasizes skill learning rather than performance outcomes and acts in a way that denotes value for all members of the team. Theoretically, then, such a coach-initiated climate should be related to higher levels of social support for injured athletes. That is, such coaches might provide encouragement to injured athletes and to continue to treat them as valuable members of the team. Such a link between the motivational climate coaches create and coaches attitudes and behavior towards injured athletes on their team has not yet been examined.

Overview of Proposed Study

The primary purposes of this study were to: (a) identify and describe the attitudes and behaviors that athletes perceive their coaches to exhibit towards injured athletes on their team and to (b) determine if particular types of coaches’ attitudes and behaviors regarding injured athletes can be predicted by the type of motivational climate coaches create on their teams.

Due to the exploratory nature of the first study purpose, no specific hypotheses can be forwarded. However, based on previous research, it was expected that there would be inter-individual variability in perceived coaches’ attitudes and behaviors towards injured athletes on their team. Furthermore, it was expected that some coaching attitudes and behaviors would be consistent with a socially supportive approach (e.g. coach encourages athletes to complete rehabilitation; coach keeps lines of communication between injured athletes open) while others would be consistent with a less socially supportive approach (e.g. coach ignores injured athletes, coach believes injuries are sign of weakness). In regard to the second study purpose, it was hypothesized that a mastery oriented (task involving) climate would be positively related to the socially supportive coaching attitudes and behaviors and that a performance oriented (ego-involved) climate would be positively related to the less socially supportive coaching attitudes and behaviors.
CHAPTER THREE – METHODOLOGICAL PROCEDURES

The proposed study was based on a quantitative methodological approach and was designed to: (a) identify collegiate athletes’ perceptions regarding their coaches’ attitudes, beliefs, and behaviors towards and with injured athletes on their team; and to (b) test whether perceived coaching attitudes, beliefs, and behaviors towards injured athletes would be predicted by the type of motivational climate that coaches are perceived to create within their teams. Data collection procedures involved the administration of a set of self-report questionnaires to a sample of collegiate athletes. In the following sections of this chapter, specific details regarding the study methodology are provided.

Study Participants

The participants in this study included a total of 416 male (n= 211) and female (n= 205) athletes from Division I (n= 58), II (n= 14) and III (n= 330) universities located all across the United States, but primarily in the Midwest. The athletes ranged in age from 18 to 27 years old (M= 19.70, SD= 1.34). No restrictions were placed on the participant sample other than that athletes must be at least 18 years old and must currently be a member of one of their college’s/university’s intercollegiate varsity teams. Participants were involved in a wide range of individual and team sports such as basketball, soccer, baseball, tennis, and swimming. With respect to the participants’ year in school, 153 freshman, 110 sophomores, 77 juniors and 73 seniors comprised the sample. In addition, the scholarship status of the participants ranged from no scholarship to a full scholarship. Specifically, 344 athletes were not receiving a scholarship, 21 athletes received a partial but less than half scholarship, 10 athletes received a half scholarship, 21 athletes received a partial and more than half scholarship and 20 athletes received a full scholarship.

Instrumentation

As mentioned earlier, self-report questionnaires were administered to a large sample of collegiate athletes. The specific instruments used in this study are explained in the following sections.
Demographic Questionnaire

A demographic questionnaire (see Appendix A for a copy) was completed by all study participants. This questionnaire was designed to obtain information concerning the athletes’ age, gender, year in school, sport, collegiate level and scholarship status.

Coaching Attitudes and Behavior Scales

Two self-report questionnaires were used to assess collegiate athletes’ perceptions of their coaches’ attitudes and behaviors. These questionnaires are described in the following paragraphs.

Perceived Motivational Climate in Sport Questionnaire-2. The Perceived Motivational Climate in Sport Questionnaire-2 (PMCSQ-2) (Newton et al., 2000) (see Appendix B for copy) was used to assess the type of motivational climate (ego or task-involving) that coaches create within the sport environment. The questionnaire consists of 33 items that ask the athlete to describe what the environment on their team is like. The stem for all statements is, “On this team..”. A five-point Likert-type response scale is used to measure the degree to which each athlete agrees with each team environment statement. The response choices range from “Strongly Disagree” (1) to “Strongly Agree” (5). The 33 items are divided into two first-order factors (task-involving and ego-involving) that describe two different types of team climates. Each of these first order factors is further divided into three second-order factors. The task-involving first order factor contains three subscales. The first is Cooperative Learning and reflects the fact that the coach encourages teammates to improve each other’s skill development and to work together as a team. The second subscale, Important Role, indicates that the coach emphasizes each athlete’s unique contribution to the team. Finally, the third subscale of a task oriented climate, Effort and Improvement, describes a coach who makes sure that all players improve on skills they are not good at. The ego-involving climate first order factor also contains three subscales. The first subscale, labeled Punishment for Mistakes, describes coaches who frequently administer punishment to players who make mistakes. The second subscale, Unequal Recognition, describes coaches who direct their attention to the most talented players while ignoring the others. Finally, the third subscale, Intra-Team Member Rivalry, reflects a coaching style in which players receive praise for doing better than other teammates.
A considerable amount of research has been conducted to provide evidence for the reliability and validity of the PMCSQ-2 (see summary of this research by Duda, 2001 and Newton et al., 2000). To assess the internal consistency of the second order subscales for this study, a Cronbach’s alpha procedure was used. The results indicated acceptable levels (alpha values ranged from .83 to .89) for all but one of the six subscales. The exception was the subscale labeled Intra-Team Member Rivalry. The alpha coefficient for this subscale was .56, which is considerably below the recommended standard of .70 and somewhat below the minimal standard of .60 (Nunnally, 1978). The inter-correlations between items on the subscale were examined and the alpha coefficients for the subscale when each item was deleted were also computed. These results indicated that no one item contributed to the low overall alpha coefficient. Thus, it is likely that the lower internal consistency for this subscale relative to the other five is because it only has three items. Thus, the subscale was maintained, but caution should be used in the interpretation of results corresponding to this subscale.

The Perceived Team Climate For Injuries. To assess athletes’ perceptions of the attitudes, beliefs, and behaviors exhibited by their coach toward injured athletes on their team, a new scale, The Perceived Team Climate for Injuries, was developed specifically for this study (see Appendix C for copy). This questionnaire consists of 33 items, each with a common stem of “My coach...”. Example items in this scale include: “My coach respects athletes who play with pain”; “My coach seems to understand how hard it is to rehab some athletic injuries.”; “My coach acts like injured athletes should be ashamed of their inability to play.” The response options are based on a five-point Likert-type scale and range from “Not At All True” to “Very Much True”. The items for the questionnaire were selected based on a review of the research studies (both quantitative and qualitative) that have provided information from injured athletes regarding their coaches’ attitudes, beliefs and behaviors toward them (e.g., Gould et al., 1997; Granito, 2002; Johnston & Carroll, 1998; Nixon, 1994a and 1994b; Udry et al., 1997; Vergeer & Hogg, 1999). Positive and negative items were written to express the ideas obtained from these studies. A total of 52 items were initially written. Feedback on these items was obtained from a small sample of current and former athletes and coaches. The initial list of items was then reduced, and individual items were edited to improve clarity and/or to better reflect
athletes’ voices. A final review of the questionnaire was also conducted by an assistant professor with significant academic expertise and practical experience in athletic training.

College Injury History

A one-page questionnaire was developed (see Appendix D for copy) to assess athletes’ previous or current injury experiences. If athletes indicated they had experienced a sport injury, they were then asked to describe the most serious injury they had experienced. This was followed by a question regarding treatment for the injury. The response format for this question included such responses as “ice, rest, surgery, strengthening exercises and flexibility exercises.” The number of days the athlete missed practice, followed by the number of missed matches/games/meets was also assessed. The final question asked athletes to indicate how successful their rehabilitation was. Formalized responses to this question included: “I never played again; I played again, but in a limited role; I played again, but never got back to the level I was at before the injury; I played again, but took a long time to reach the level I was at before; I played again, reached my previous level of performance, but still have some continuing problems (e.g. pain, swelling, re-injury); I played again, but have to use a brace, get taped, or use other preventative measures; My rehabilitation was completely successful (100% recovery); I am currently still injured and have not yet returned to play.”

All athletes participating in this study completed the Perceived Team Climate for Injuries, regardless of whether or not they had experienced an injury. However, preliminary analyses were conducted to determine if those who had been injured perceived their coaches’ behavior differently than did those athletes who had not been injured.

Data Collection Procedures

In order to recruit participants for the current study, two different recruitment procedures were used. In the first procedure, members of the research team contacted Division I, II and III coaches via email or the phone to explain the purpose of the study and to ask each coach for her or his help in scheduling a 30-minute data collection session with her or his athletes. If the coach agreed to help, a time to administer the surveys was set up. This occurred either before or after a regularly scheduled practice,
during study tables, or before or after video analysis team sessions. The data collection sessions were held during all points of the athletic season, but primarily during the second half of the season (35.6%). Another 22.8% of the data were collected during the preseason, 29% during the first half of the competitive season, 7% immediately post competitive season and 5.3% during off season training. At the data collection meeting, the researchers explained the purpose of the study and supplied the athletes with an information sheet describing the study. If athletes agreed to participate, they were given the questionnaires and were asked to sign the consent form. They were then allowed as much time as needed to complete the entire set of questionnaires. Coaches were not present during the time that the athletes completed the questionnaires.

In the second recruitment method, members of the research team contacted the instructors of several classes at Miami University (e.g., EDT 110 and several PHS laboratory classes) to ask for their help in scheduling a five-minute session with the student-athletes enrolled in their class. This session occurred at the end of a regularly scheduled class. If the instructors agreed to help, then a time block was scheduled at the instructor’s convenience. The data collectors went to the class at the scheduled time and excused all of the students who were not intercollegiate athletes. An explanation of the study as well as a written description of the study was then provided to the student-athletes. If the student-athletes agreed to participate, they were asked to stay after class to complete the questionnaires. If they could not stay, they were allowed to take the survey packet home, complete it there, and then either return the completed questionnaire in a sealed campus envelope or return the completed questionnaire to the research assistant who attended the next class session.

Statistical Analyses

Due to the exploratory nature of the first study purpose, the analysis of study data began with an exploratory factor analysis conducted with the Perceived Team Climate for Injury Questionnaire that was developed specifically for this study. Then, the second study purpose was tested by using multivariate multiple regression and canonical correlation procedures to determine if coaches’ behaviors and attitudes toward the injured athletes on their team (factor scores from the Perceived Team Climate for Injury
questionnaire) could be predicted by the type of motivational climate they create (subscale scores from the PCMSQ-2).
CHAPTER FOUR – RESULTS

This study was intended to: (a) identify collegiate athletes’ perceptions regarding their coaches’ attitudes, beliefs, and behaviors towards and with injured athletes on their team; and to (b) test whether perceived coaching attitudes, beliefs, and behaviors towards injured athletes can be predicted by the type of motivational climate that coaches are perceived to create within their teams. In regards to the first study purpose, no specific hypotheses had been forwarded, although it was anticipated that there would be inter-individual variability in perceived coaches’ attitudes and behaviors towards injured athletes on their team. In addition, it was expected that some coaching attitudes and behaviors would be consistent with a socially supportive approach (e.g. coach encourages athletes to complete rehabilitation; coach keeps lines of communication with injured athletes open) while others would be consistent with a less socially supportive approach (e.g. coach ignores injured athletes, coach believes injuries are sign of weakness). With respect to the second study purpose, it was hypothesized that a mastery oriented (task involving) climate would be positively correlated to the socially supportive coaching attitudes and behaviors and that a performance oriented (ego-involving) climate would be positively related to the less socially supportive coaching attitudes and behaviors.

To examine these study purposes, a variety of statistical procedures were used. The results of these analyses are presented in the following sections. In the first section, descriptive statistics are presented. In the second section, the results of two preliminary analyses are described. Finally, in the third section, the main study analyses are presented.

Descriptive Statistics

The descriptive statistics for the college injury variables revealed that 47.8% of the athletes had experienced an injury during their collegiate careers, whereas 50.5% of the participants reported that they had not experienced injuries. Those who had been injured indicated that they had experienced a wide range of injuries from concussions to ACL tears to non sporting injuries. Of those that were injured, some athletes had experienced more than one injury during their career (n= 29). The minimum number of practices and games missed for those athletes who were injured was 0. However, the
maximum number was the entire season. Similarly, the number of games/practices missed due to the reported injury ranged from 0 to the entire season.

The descriptive data obtained for the subscales from the Perceived Motivational Climate in Sport Questionnaire-2 (PMCSQ-2) (see Table 1), revealed some interesting results. Specifically, the group of athletes in this sample scored at or above a 3.96 on all three subscales describing a task-involving climate. These three means were above the midpoint on the scale (2.5), thus indicating that the athletes as a group perceived their coaches to exhibit a task-oriented climate. In regard to the three subscales from the ego-involving climate, the mean values ranged from 2.62 to 2.90, which is slightly above the midpoint (2.50) on the scale. The size of the standard deviations and range for all six subscales indicate considerable inter-individual variability. Thus, the sample of athletes in this study did differ from each other in their perceptions of the motivational climate that their coaches create in practices and competitive events.

**Preliminary Results**

Two preliminary analyses were conducted for this study. The results of these procedures are presented in the following sections.

*Factor Analysis of the Perceived Team Climate for Injuries*

As noted earlier, an exploratory factor analysis was conducted on the 33 items from the Perceived Team Climate for Injuries to determine the underlying subscale structure. This analysis was necessary given that this questionnaire was developed specifically for this study. The analysis was conducted with the entire sample of 416 participants (199 athletes were injured, 210 were not). Initial factors were extracted using a minimal eigenvalue of 1.0 and orthogonal (varimax) rotation procedures were used.

Results of this factor analysis revealed four factors which met the criteria of a minimal eigenvalue of 1.0 and at least 4% of the variance explained. A minimal loading of .40 was used to interpret all factors. Items loading highly on factor 1 (see Table 2) reflect coaching behaviors and attitudes that would be considered non-socially supportive towards injured athletes. Specifically, these items included ignoring injured athletes, preventing injured athletes from seeking medical help, and making fun of injured athletes. Therefore, this factor was labeled Lack of Concern. Items loading highly on factor 2, however, describe coaching behaviors and attitudes that are more socially
supportive of injured athletes on their team. Some of those behaviors consisted of encouraging rehabilitation, making athletes feel part of the team, and communicating with the athlete. Thus, this factor was labeled Direct Coach Involvement. Further, items loading highly on factor 3 reflect coaches’ tendencies to push their injured athletes to return to competition. Because these items describe coaches who pressure injured athletes to play before they should, this factor was labeled Coach Pressure to Play. Finally, the two items loading high on factor 4 implied that playing through an injury was rewarded or encouraged by coaches. Specifically, these two items included perceived coaching tendencies to respect athletes who play with pain and to believe that playing hurt is a sign of character. As a result, this factor was labeled Coach Support of Pain.

Four subscale scores corresponding to each identified factor were created for each athlete using regression procedures. These subscale scores were subsequently used in analyzing the data for the study. Overall, then, the results of this factor analysis revealed a relatively clean factor structure with only a minimal amount of cross-loading. Specifically, two items cross-loaded on two different factors. But, these two items loaded positively on one factor and negatively on the other. Two other items double-loaded positively on two factors. In future revisions of this scale, these four items should probably be deleted.

**Multivariate analysis of variance (2 X 2 MANOVA)**

A 2 X 2 MANOVA was conducted to determine if athletes’ scores on the four subscales from the Perceived Team Climate for Injuries differed as a function of athletes’ gender and/or injury history. The independent variables included both gender and injury history (whether or not the athlete had experienced an athletic injury playing in college). The dependent variables consisted of the four factor scores from the Perceived Team Climate for Injuries scale. The results revealed a non significant gender by injury history interaction effect, Wilks’ lambda = .99; F (4,338) = .28, p < .89. However, there was a significant gender main effect, Wilks’ lambda = .89; F (4,338) = 10.56, p < .00. The results of the follow up univariate F-values were examined to determine which specific variables contributed most to group differences. These results (see Table 3) demonstrated that males and females differed significantly on two of the four factor scores. Specifically, in regards to factor 1 (Lack of Concern), males scored higher than did
females, indicating that males perceived their coaches to exhibit less socially supportive attitudes and behaviors toward injured athletes on their team than did females. In addition, on factor 2, (Direct Coach Involvement) male athletes also scored higher than did females. Thus, male athletes also perceived their coaches to exhibit more socially supportive attitudes and behaviors toward injured athletes. With respect to factors 3 (Coach Pressure to Play) and 4 (Coach Support of Pain), males and females did not differ.

The results of the 2 X 2 MANOVA also revealed a significant injury history main effect, Wilks’ lambda = .94; F (4,338) = 5.79, p < .00. The results of the follow up univariate F values (see Table 4) revealed that injured and non injured athletes differed significantly on factor 1 and factor 3. In regards to factor 1 (Lack of Concern), injured athletes scored higher indicating that they perceived their coaches to exhibit less socially supportive attitudes and behaviors than did those athletes who were not injured. In addition, injured athletes also scored higher on factor 3 (Coach Pressure to Play) indicating that they perceived their coaches pressured them to play more so than did the non-injured athletes.

In summary, the results demonstrated that male and female athletes differed significantly in their perceptions of their coaches’ attitudes and behaviors toward injured athletes on their team. Specifically, male athletes perceived their coaches to exhibit both more positive and negative behaviors toward injured athletes on their team than did females. With respect to injury history, injured athletes perceived their coaches to exhibit more negative attitudes and behaviors toward injured athletes than did the athletes who had not been injured. In addition, injured athletes perceived more pressure from their coaches to play than did non-injured athletes.

**Main Study Analyses**

To test the hypothesis that athletes’ perceptions of their teams’ motivational climate would be related to, or predictive of, their perceptions of their coaches’ attitudes and behaviors towards injured athletes on their team, a multivariate multiple regression with follow up canonical correlational analyses was conducted. The dependent variables were the four factor scores obtained from the Perceived Team Climate for Injuries Questionnaire and the predictor or independent variables were the six subscale scores
from the Perceived Motivational Climate in Sport Questionnaire-2 (PMCSQ-2), three of which measure a mastery-involving motivational climate and the other three which measure an ego involving motivational climate. The results of this analysis revealed a significant relationship between the two data sets, Wilks’ lambda = .36; F (24,1180) = 16.94 p < .00.

Examination of the follow-up canonical correlational analyses revealed two significant canonical functions. Examination of the canonical loadings (see Table 5) for the first canonical function revealed that high scores on all three task involving subscales were predictive of high scores of factors 2 (Direct Coach Involvement) and 3 (Coach Pressure to Play) and low scores on factor 1 (Lack of Concern) of the Perceived Team Climate for Injuries Questionnaire. In addition, high scores on the three ego subscales were predictive of high scores on factor 1 (Lack of Concern) and low scores on factor 2 (Direct Coach Involvement) and 3 (Coach Pressure to Play). Therefore, athletes who perceived their coach to exhibit a task involving climate also perceived their coach to exhibit positive attitudes and behaviors towards injured athletes. In contrast, athletes who perceived their coaches to create an ego involving climate also perceived their coach to exhibit negative attitudes and behaviors towards injured athletes.

Examination of the canonical loadings for the second canonical function revealed that high scores on all three task involving subscales and two of the three ego involving subscales were predictive of high scores on factors 2 (Direct Coach Involvement) and 4 (Coach Support of Pain). Thus, both an ego oriented climate and task oriented team climate were correlated with high scores on the positive and emotionally supportive factor as well as on the factor associated with coaches’ tendencies to perceive playing with pain as a sign of character in athletes.

The redundancy indices for the two canonical functions indicated that 28.36% of the variance in the dependent variables was explained in the first function, and 25.81% was explained in the second function. In summary, then, a total of 54.17% of the variability between athletes in their perceptions of their team's climate for injured athletes was explained by the independent variables (i.e., the six subscales from the perceived team motivational climate questionnaire). This overall redundancy index is very large,
suggesting that the effect size (and the meaningfulness) for this canonical relationship is correspondingly very large.

As noted earlier in this chapter, preliminary analyses revealed that athletes’ perceptions of their coaches’ attitudes and behaviors towards injured athletes on their team did vary as a function of athletes’ gender and injury history. Thus, separate multivariate multiple regression analyses were run for the injured and non-injured athletes and for males and females to determine if the link between the perceived motivational climate and the perceived injury climate factors differed for these groups. These separate analyses indicated almost identical results. Thus, although injured and non-injured athletes and male and female athletes differed in their perceptions of their coaches’ attitudes and behaviors towards injured athletes on their team, they did not differ in regard to the influence of the coach-initiated motivational climate on their perceptions of these coach behaviors.

In general, then, the results of these main study analyses revealed that athletes’ perceptions of their team’s motivational climate were predictive of their perceptions regarding their coaches’ attitudes and behaviors towards injured athletes. Specifically, a task oriented motivational climate was positively related to factors 2 (Direct Coach Involvement) and 3 (Coach Pressure to Play). Further, factor 1 (Lack of Concern) was negatively correlated with a task involving climate. In regards to an ego oriented climate, high scores on all three subscales were positively related to factor 1 (Lack of Concern), but negatively related to factors 2 (Direct Coach Involvement) and 3 (Coach Pressure to Play). Function 2, however demonstrated that all three task involving subscales and two of the three ego involving subscales were positively related to factors 2 (Direct Coach Involvement) and 4 (Coach Support of Pain).
CHAPTER FIVE – DISCUSSION

The primary purposes of this study were to: (a) identify and describe the attitudes and behaviors that athletes perceive their coaches to exhibit towards injured athletes on their team and to (b) determine if particular types of coaches’ attitudes and behaviors regarding injured athletes can be predicted by the type of motivational climate coaches create on their teams. A variety of statistical procedures were used to examine these two issues. Results of the analyses for these two study purposes are discussed in the following sections.

A 33 item scale, the Perceived Team Climate for Injuries, was developed for this study to measure athletes’ perceptions of the attitudes, beliefs, and behaviors exhibited by their coach toward injured athletes on their team. For the first study purpose, it was expected that some coaches would exhibit socially supportive behaviors, attitudes and beliefs towards injured athletes and that other coaches would exhibit less socially supportive attitudes, beliefs and behaviors. The results of the exploratory factor analysis provided support for this dichotomy. Specifically, the factor analysis revealed four factors. The first factor included items that describe less socially supportive or negative coaching behaviors (e.g. acts like injured athletes should be ashamed of their inability to play; isn't sympathetic when athletes get injured during play) while the second factor revealed more positive coaching behaviors towards injured athletes (e.g. keeps in close communication; encourages injured athletes to do their rehabilitation). The third factor revealed coaching behaviors that pushed injured athletes to play (e.g. tries to push athletes to come back; tries to get injured athletes to return to play before they should) while the fourth factor included items that reflected coaches perceptions that playing through pain should be perceived as a sign of character. These results are similar to those obtained from previous qualitative studies (Udry et. al 1997; Granito 2002; Gould et. al 1997). Specifically, these qualitative studies revealed that some coaches were perceived to exhibit more negative behaviors and attitudes toward injured athletes on their team (e.g. ignoring injured athletes, insensitive to injury). Other coaches, however, were perceived by injured athletes to be more positive (e.g. kept in contact, provided encouragement).
In the current study as well, factors 1 (Lack of Concern) and 2 (Direct Coach Involvement) clearly described opposite coaching patterns. Factor 1 (Lack of concern) described coaches who were not socially and emotionally supportive, and this can be identified as a more negative coaching pattern. In contrast, factor 2 (Direct Coach Involvement) described a more positive coaching pattern by including items that described coaches as listening to injured athletes and working with trainers to make sure injured athletes get adequate treatment. Factors 3 (Coach Pressure to Play) and 4 (Coach Support of Pain) are more difficult to categorize as positive or negative. Specifically factor 3 (Coach Pressure to Play) included items that described coaches who pushed injured athletes to return to competition. Intuitively, this might be perceived as negative coach behavior. However, factor 3 (Coach Pressure to Play) was also found to be positively associated with athletes’ perceptions of a task-involving coach-created motivational climate. Thus, it does seem as if the items on this factor might be perceived by athletes as more positive coaching behavior. This could be the case because injured athletes may perceive their coaches’ "pushing behaviors" to be an indicator that their coaches value them and are anxious for them to get back into the game. Athletes who have never been injured themselves may also want coaches to "push" their injured teammates to return either because they, too, value their injured teammates and want them back or because the non-injured athletes perceive that there are times when their coaches need to push "malingering" injured athletes to return. Either way, the results of this study suggest that coach behaviors and attitudes that can be described as "pushing" injured athletes to return to play are perceived by athletes to be positive.

Factor 4 (Coach Support of Pain) included two items that described coaches’ appreciation for, and value of, athletes who play while injured. Again, it is difficult to know whether this factor is positive or negative, especially as it was correlated in the second canonical function to aspects of both task-involving and ego-involving climates. This factor is similar to the results found by Nixon (1994) whose study revealed that coaches supported the idea that athletes who play with pain deserve respect and that athletes should push themselves to the limit. Again, it is possible that athletes who play at the collegiate (elite) level expect and want their coaches to adopt an attitude that
"playing hurt" is of value. Clearly, further study is needed to determine whether this positive interpretation of factors 3 and 4 is valid.

In summary, the results of this part of the study show that collegiate athletes perceived both positive and negative coaching attitudes and behaviors toward injured athletes on their teams. These results demonstrate that coaches, as leaders, do affect athletes' well-being. The results also revealed variability in how individual athletes perceive their coaches to behave toward injured athletes. Therefore, coaches need to be aware that each athlete has different needs and may require different types of social support during their injury recovery.

A 2 X 2 MANOVA was conducted as a preliminary analysis to determine if athletes’ scores on the four subscales from the Perceived Team Climate for Injuries differed as a function of athletes’ gender and/or injury history. The results revealed a gender main effect. That is, males and females differed significantly on two of the four factor scores. Specifically, in regards to factor 1 (Lack of Concern), males scored higher than did females, indicating that males perceived their coaches to exhibit less socially supportive attitudes and behaviors toward injured athletes on their team than did females. In addition, on factor 2 (Direct Coach Involvement), male athletes also scored higher than did females. Thus male athletes also perceived their coaches to exhibit more socially supportive attitudes and behaviors toward injured athletes. With respect to factors 3 (Coach Pressure to Play) and 4 (Coach Support of Pain), males and females did not differ. The gender differences found for factors 1 and 2 in this study may have occurred because coaches of male and female athletes do actually behave differently toward injured athletes on their team. Alternatively, it is possible that male and female athletes perceive coaches' behavior differently. Whatever the cause, it appears from this study that male athletes have more extreme views than do their female peers of their coaches' behaviors towards injured athletes. That is, the male athletes exhibited higher perceptions of both positive and negative coaching behaviors than did the female athletes.

These findings are different than those found in Granito’s (2002) study which revealed that male and female athletes perceived their coaches differently in their response to injured athletes. In particular, Granito (2002) found that female athletes described more negative behaviors from their coaches after an injury than did male
athletes. More research is obviously needed to identify exactly how and why male and female athletes differ in their perception of their coaches’ attitudes and behaviors towards injured athletes on their team. Specifically, future researchers should attempt to tease out the explanation for gender differences in male and female athletes by examining both same-sex coach-athlete dyads (e.g., male coach-male athlete; female coach-female athlete) as well as opposite-sex coach-athlete dyads (e.g., male coach-female athletes; female coach-male athletes). Although such groupings may be difficult to find in collegiate sport, the results of such comparisons would separate out some of the confusion in the coaching effectiveness research on gender differences in male and female athletes' responses to different types of coaching behavior.

In the current study, the preliminary MANOVA also revealed a significant main effect for injury history. That is, injured and non injured athletes differed significantly on factor 1 (Lack of Concern) and factor 3 (Coach Pressure to Play). In regards to factor 1, injured athletes scored higher, indicating that they perceived their coaches to exhibit less socially supportive attitudes and behaviors than did those who were not injured. In addition, injured athletes also scored higher on factor 3 (Coach Pressure to Play), indicating that they perceived their coaches pressured them to play more so than did non-injured athletes. These differences between injured and non-injured athletes in how they perceive their coaches to behave toward injured athletes on their team likely occurred because injured athletes are more directly involved. That is, injured athletes experience coaches’ behaviors firsthand whereas non-injured athletes merely observe the same behavior. Thus, it is not surprising that some differences were found in regard to injured and non-injured athletes' perceptions of their coaches' behavior toward injured athletes on their team.

The second purpose of this study was to determine if particular types of coaches’ attitudes and behaviors regarding injured athletes can be predicted by the type of motivational climate coaches create on their teams. It was hypothesized that a mastery oriented (task involving) climate would be positively related to the socially supportive coaching attitudes and behaviors and that a performance oriented (ego-involving) climate would be positively related to the less socially supportive coaching attitudes and behaviors. A multivariate multiple regression with a follow up canonical correlational
analysis was conducted to test this study purpose. The dependent variables were the four factor scores obtained from the Perceived Team Climate for Injuries Questionnaire, and the predictor or independent variables were the six subscale scores from the Perceived Motivational Climate in Sport Questionnaire-2 (PMCSQ-2), three of which measure a mastery-involving motivational climate and the other three which measure an ego involving motivational climate. In general, the results revealed that athletes who perceived their coach to create a task involving climate also perceived their coach to have positive attitudes and behaviors towards injured athletes. In contrast, athletes who perceived their coaches to create an ego involving climate, perceived their coach to have negative attitudes and behaviors towards injured athletes. Thus, an ego oriented climate was negatively correlated with socially supportive coaching behaviors, while a task oriented climate was positively correlated with socially supportive coaching behaviors. The results from this study are similar to Reinboth & Duda’s (2004, 2006) studies, who found a relationship between coach-created motivational climates and athletes’ level of intrinsic motivation and physical and emotional well-being. Therefore, the findings from this study extend Reinboth & Duda’s research (2004, 2006) by assessing coaching behavior towards injured athletes.

A positive relationship between a task oriented motivational climate and socially supportive coaching behaviors, seems reasonable considering that a task-oriented climate focuses on skill improvement, effort and cooperative learning. Therefore, coaching behavior in a task oriented climate reflects that all players on their teams are valuable despite their injury status and focuses on the team as a whole.

In contrast, a negative relationship between an ego oriented team climate and less socially supportive coaching behaviors seems reasonable considering that an ego-involving climate focuses on unequal recognition, punishment for mistakes and intra-team rivalry. That is, coaches who create an ego oriented team climate would typically focus more so on healthy athletes while ignoring those who are injured. Therefore, injured athletes would be perceived to have no value on the team when they are not contributing to team performance.

In regards to the second function in the canonical analysis, high scores on all three task involving subscales and two of the ego involving subscales (Punishment for
Mistakes and Intra-Team Rivalry) were predictive of high scores on factors 2 (Direct Coach Involvement) and 4 (Coach Support of Pain). The results of this second canonical function appear contradictory to the results of the first function. Given that the first canonical function explains the most amount of the variability in the data, those relationships are most predominant. However, the second canonical function does contribute some amount to the variability. Thus, it appears as if both a task-involving and ego-involving climate can be predictive of positive coaching attitudes and behaviors towards injured athletes on their team. Again, further research is necessary to identify exactly how, when, and under what conditions an ego-involving team climate can be positively perceived by athletes.

In summary, the results of this study revealed that athletes’ perceptions of a coach created mastery oriented climate were most predictive of a socially supportive coaching approach to injured athletes, whereas athletes’ perceptions of a coach created ego oriented climate were most predictive of a less socially supportive approach to injured athletes on their team. Furthermore, the redundancy index indicated that a relatively large percent of the variance (54%) in the dependent variables (the factor scores from the Perceived Injury Climate Scale) was explained by the perceived motivational climate subscales. Thus, the relationship between the two data sets appears to be strong and meaningful. These results, then, could and should be applied or used in coach training workshops and coaching education classes.

Future Research Directions

Although the current study provided interesting results, there remain other important studies to conduct. Some suggestions are identified in the following paragraphs.

First, the sample used in this study is limited in generalizability to other collegiate levels because the majority of athletes in this study were from the Division III level. Therefore, because of the small sample size of Division I athletes (n= 58) in this study, future research should compare Division I and Division III athletes in their perceptions of their coaches. With the possibility of athletic scholarships at the Division I level and an increased pressure to win, coaches from Division I universities may behave differently towards injured athletes than do coaches at Division III.
Secondly, with a lower number of female coaches in the sample (n = 62), future research should explore more clearly and completely the gender differences in athletes’ perceptions of their coaches’ behavior toward injured athletes. In the current study, it was impossible to determine if coaches of male and female athletes actually do behave differently or whether male and female athletes perceive their coaches differently. Thus, future research is needed to determine if gender similar (i.e., male coach-male athletes; female coach-female athletes) or gender dissimilar coaching dyads (i.e. male coach-female athletes; female coach-male athletes) are more important to the identification of coaching effectiveness than are the gender of the athletes or coaches themselves.

Third, the results of the second canonical function suggested that both task and ego involving team climates might be positively related to coaches' socially supportive behaviors toward injured athletes. More research is needed on this issue. That is, the analyses used in this study assumed that coaches create either a task or an ego-involving climate. However, future research should be conducted to explore the effectiveness of a combination of both types of motivational climates. Specifically, research is needed that compares four types of coaches: those that create a high ego-high task climate; those that create a high ego-low task climate; those that create a low ego-high task climate; and those that create a low ego-low task climate. Such comparisons should result in more complete information regarding the effective types of coaching styles and behaviors.

Future research should also explore coaches’ behaviors towards injured athletes at different age and competitive levels. That is, coaches may be more sympathetic and cautious with injuries at the youth sport level than at the collegiate level. Also, at the youth sport level, parental involvement may be more central to athletes’ sport experience and may also interfere or affect the coaches’ decisions regarding injury. Thus, any research results that are found at the collegiate level may certainly not apply at younger age levels.

Finally, future research should address a more practical application of these findings - that is, an intervention study of educating coaches on the effects of positive and negative behavior towards injured athletes. A longitudinal research design is also needed to explore the different types of behaviors coaches’ exhibit towards injured athletes from the start of their injury to their return to competition.
Limitations of Current Study

Although this study provided some interesting results, some limitations also remain. First, this study used self-report questionnaires rather than directly measuring coaches’ behavior towards injured athletes. Thus, these responses are merely athletes’ perceptions of their coaches’ behavior, rather than the actual behavior that their coach exhibits.

In addition, the Perceived Team Climate for Injuries was developed specifically for this study and has not been extensively tested for reliability and validity. Future research should work to establish this instrument as a reliable and valid measure of coaches’ behavior towards injured athletes.

Furthermore, the sample in this study consisted of a larger number of freshman and sophomore athletes and less at the junior and senior levels. This likely occurred because the majority of the teams came from the Division III level. Due to the lack of athletic scholarships at the Division III level, many junior and senior athletes may drop out of sport, and thus there are relatively more first and second year students on the teams. As a result of the disproportionately larger number of underclass athletes in this sample, the results of this study may not necessarily generalize to upper class athletes, as athletes at the first and second year of athletic eligibility may have different perspectives on their coaches' behavior than do older collegiate athletes. Furthermore, although a majority of the data was collected during the second half of the competitive season, some of the data were collected during the preseason and the first half of the competitive season. Underclass athletes may not be familiar with their university, sport environment, or coaches' behaviors. Therefore, caution should be used in interpreting this data.

In conclusion, this is an important study considering the number of athletes who are injured each year and the amount of influence coaches have on injured athletes’ mental and physical well-being. The results have demonstrated male athletes perceive their coaches both more positively and more negatively than did female athletes. In addition, injured athletes also perceived their coaches more negatively than did those athletes who were not injured. The motivational climate that coaches create also has an effect on coaching behavior towards injured athletes. Therefore, as this study has
demonstrated, coaches are important social support agents during the injury recovery process.
References


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Quinn, A.M. & Fallon, B.J. (1999). The changes in psychological characteristics and
reactions of elite athletes from injury onset until full recovery *Journal of Applied Sport Psychology, 11*, 210-229.


Table 1: Descriptive Data of the PMCSQ-2

<table>
<thead>
<tr>
<th>PMCSQ-2 Subscales</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum Score</th>
<th>Maximum Score</th>
<th>Possible range of scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task-Involving: Cooperative Learning</td>
<td>4.12</td>
<td>.65</td>
<td>1.50</td>
<td>5.00</td>
<td>1-5</td>
</tr>
<tr>
<td>Task-Involving: Important Role</td>
<td>3.96</td>
<td>.74</td>
<td>1.00</td>
<td>5.00</td>
<td>1-5</td>
</tr>
<tr>
<td>Task-Involving: Effort and Improvement</td>
<td>4.16</td>
<td>.51</td>
<td>1.38</td>
<td>5.00</td>
<td>1-5</td>
</tr>
<tr>
<td>Ego-Involving: Punishment for Mistakes</td>
<td>2.62</td>
<td>.87</td>
<td>1.00</td>
<td>4.83</td>
<td>1-5</td>
</tr>
<tr>
<td>Ego-Involving: Unequal Recognition</td>
<td>2.90</td>
<td>.91</td>
<td>1.00</td>
<td>5.00</td>
<td>1-5</td>
</tr>
<tr>
<td>Ego-Involving: Intra-Team Member Rivalry</td>
<td>2.86</td>
<td>.75</td>
<td>1.00</td>
<td>4.67</td>
<td>1-5</td>
</tr>
<tr>
<td>Task-Involving Climate</td>
<td>4.08</td>
<td>.57</td>
<td>1.29</td>
<td>5.00</td>
<td>1-5</td>
</tr>
<tr>
<td>Ego-Involving Climate</td>
<td>2.79</td>
<td>.71</td>
<td>1.00</td>
<td>4.67</td>
<td>1-5</td>
</tr>
</tbody>
</table>
### Table 2: Factor Analysis results of the Perceived Team Climate for Injuries

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Makes injured athletes believe that the teammate replacing them is better</td>
<td>.80</td>
<td></td>
<td></td>
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<tr>
<td>Reminds athletes that they may lose their playing position</td>
<td>.80</td>
<td></td>
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<tr>
<td>Makes fun of injured athletes by implying they are lazy, unmotivated</td>
<td>.78</td>
<td></td>
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<tr>
<td>Acts like injured athletes should be ashamed of their inability to play</td>
<td>.75</td>
<td></td>
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<tr>
<td>Injured athletes are partly responsible for losses the team had while they were injured</td>
<td>.72</td>
<td></td>
<td></td>
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<tr>
<td>Acts if he/she is angry at athletes who get injured</td>
<td>.69</td>
<td></td>
<td></td>
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<tr>
<td>Injured athletes are not longer valued members of the team</td>
<td>.69</td>
<td></td>
<td></td>
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<tr>
<td>Makes negative comments to the rest of the team about athletes who don't push hard to come back</td>
<td>.67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injured athletes are &quot;faking&quot; or unmotivated to return to play</td>
<td>.65</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Tries to prevent injured athletes from seeking medical help</td>
<td>.59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thinks athletes can never come back to play as well</td>
<td>.55</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Doesn't always believe or trust athletes who say they are in pain</td>
<td>.53</td>
<td>.44</td>
<td></td>
<td></td>
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<tr>
<td>Isn't sympathetic when athletes get injured during play</td>
<td>.41</td>
<td></td>
<td></td>
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<tr>
<td>Suggests ways the athlete can stay in shape</td>
<td>.74</td>
<td></td>
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<tr>
<td>Works with trainers and doctors to make sure the athlete gets adequate treatment</td>
<td>.72</td>
<td></td>
<td></td>
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<tr>
<td>Knows about athletic injuries can provide advice about rehabilitation</td>
<td>.68</td>
<td></td>
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<tr>
<td>Listens to injured athletes and tries to understand what they are going through</td>
<td>.65</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Keeps in close communication</td>
<td>.61</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Is positive and encouraging when athletes come back</td>
<td>.61</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Ignores injured athletes</td>
<td>.49</td>
<td>-.55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Makes sure that injured athletes feel like they are part of the team</td>
<td>-.41</td>
<td>.53</td>
<td></td>
<td></td>
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<tr>
<td>Understands that returning from injury can be hard at first</td>
<td>.53</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Seems to understand how hard it is to rehab</td>
<td>.52</td>
<td></td>
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<tr>
<td>Doesn’t know much about injuries and shows no interest in the rehabilitation process</td>
<td>-.51</td>
<td></td>
<td></td>
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<tr>
<td>Encourages injured athletes to do their rehabilitation</td>
<td>.51</td>
<td></td>
<td></td>
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<tr>
<td>Makes sure that injured athletes are still learning new offenses, strategies</td>
<td>.48</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Tries to get athletes involved in the game (statistics, film)</td>
<td>.44</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Tries to get injured athletes to return to play before they should</td>
<td></td>
<td>.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tries to push athletes to come back</td>
<td>.41</td>
<td>.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is understanding &amp; sympathetic</td>
<td>.44</td>
<td>-.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Playing hurt&quot; is a sign of good character</td>
<td></td>
<td>.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respects athletes who play with pain</td>
<td></td>
<td>.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Eigenvalue</strong></td>
<td>7.54</td>
<td>6.49</td>
<td>2.54</td>
<td>1.41</td>
</tr>
<tr>
<td><strong>Percentage of Variance</strong></td>
<td>22.86</td>
<td>19.66</td>
<td>7.69</td>
<td>4.29</td>
</tr>
</tbody>
</table>
Table 3: Significant Gender Main Effect

<table>
<thead>
<tr>
<th>Variable</th>
<th>Univariate F-values</th>
<th>Males Mean</th>
<th>Males S.D.</th>
<th>Females Mean</th>
<th>Females S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1: Lack of Concern</td>
<td>23.35*</td>
<td>.24</td>
<td>1.07</td>
<td>-.25</td>
<td>.73</td>
</tr>
<tr>
<td>Factor 2: Direct Coach Involvement</td>
<td>9.94*</td>
<td>.15</td>
<td>.78</td>
<td>-.16</td>
<td>1.06</td>
</tr>
<tr>
<td>Factor 3: Coach Pressure to Play</td>
<td>3.12</td>
<td>.08</td>
<td>.74</td>
<td>-.08</td>
<td>.92</td>
</tr>
<tr>
<td>Factor 4: Coach Support of Pain</td>
<td>3.31</td>
<td>.08</td>
<td>.87</td>
<td>-.08</td>
<td>.83</td>
</tr>
</tbody>
</table>

* p < .01
Table 4: Significant Injury History Main Effect

<table>
<thead>
<tr>
<th>Variable</th>
<th>Univariate F Values (4,338)</th>
<th>Injured Mean</th>
<th>Injured S.D.</th>
<th>Non- Injured Mean</th>
<th>Non-Injured S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1: Lack of Concern</td>
<td>4.06*</td>
<td>.10</td>
<td>1.05</td>
<td>-.09</td>
<td>.82</td>
</tr>
<tr>
<td>Factor 2: Direct Coach Involvement</td>
<td>.77</td>
<td>-.05</td>
<td>1.03</td>
<td>.04</td>
<td>.86</td>
</tr>
<tr>
<td>Factor 3: Coach Pressure to Play</td>
<td>18.51**</td>
<td>.19</td>
<td>.92</td>
<td>-.19</td>
<td>.70</td>
</tr>
<tr>
<td>Factor 4 Coach Support of Pain</td>
<td>1.75</td>
<td>.06</td>
<td>.86</td>
<td>-.06</td>
<td>.85</td>
</tr>
</tbody>
</table>

* p < .05
** p < .00
Table 5: Follow up canonical correlational results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Function 1</th>
<th>Function 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 1: Lack of Concern</td>
<td>-.58</td>
<td>-.31</td>
</tr>
<tr>
<td>Factor 2: Direct Coach Involvement</td>
<td>.74</td>
<td>-.50</td>
</tr>
<tr>
<td>Factor 3: Coach Pressure to Play</td>
<td>.47</td>
<td>-.26</td>
</tr>
<tr>
<td>Factor 4: Coach Support of Pain</td>
<td>-.13</td>
<td>-.79</td>
</tr>
<tr>
<td><strong>Predictor Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task Involving: Cooperative</td>
<td>.76</td>
<td>-.40</td>
</tr>
<tr>
<td>Learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task Involving: Important Role</td>
<td>.70</td>
<td>-.52</td>
</tr>
<tr>
<td>Task Involving Effort and</td>
<td>.76</td>
<td>-.47</td>
</tr>
<tr>
<td>Improvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ego Involving: Punishment for</td>
<td>-.87</td>
<td>-.44</td>
</tr>
<tr>
<td>Mistakes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ego Involving: Unequal Recognition</td>
<td>-.72</td>
<td>-.10</td>
</tr>
<tr>
<td>Ego Involving: Intra-Team Rivalry</td>
<td>-.49</td>
<td>-.43</td>
</tr>
</tbody>
</table>
Appendix A
Demographic Questionnaire

COLLEGIATE ATHLETES' SURVEY

Player Information

AGE ______

GENDER
   Male ____
   Female ____

YEAR IN SCHOOL ______

SPORT __________________________

YOUR COACH'S GENDER
   Male ____
   Female ____

COLLEGE DIVISION
   Division I _____
   Division II _____
   Division III _____
   NAIA ____
   Other (please specify) ________________

ATHLETIC SCHOLARSHIP STATUS (check closest approximation)
Full Scholarship _____
Partial: More than Half _____
Partial: Half _____
Partial: Less than Half _____
No Scholarship __________
Appendix B

THE PERCEIVED MOTIVATIONAL CLIMATE IN SPORT QUESTIONNAIRE - 2

Directions: Please think about how it has felt to play on your team throughout this season. What is it usually like on your team? Read the following statements carefully and respond to each in terms of how you view the typical atmosphere on your team. Perceptions naturally vary from person to person, so be certain to take your time and answer as honestly as possible. Circle the number that best represents how you feel.

<table>
<thead>
<tr>
<th>ON THIS TEAM.....</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The coach wants us to try new skills.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. The coach gets mad when a player makes a mistake.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. The coach gives most of his or her attention to the stars.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Each player contributes in some important way.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. The coach believes that all of us are crucial to the success of the team.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. The coach praises players only when they outplay team-mates.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. The coach thinks only the starters contribute to the success of the team.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. Players feel good when they try their best.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Players are taken out of a game for mistakes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. Players at all skill levels have an important role on the team.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. Players help each other learn.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>ON THIS TEAM.....</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------</td>
<td>----------</td>
<td>---------</td>
<td>-------</td>
<td>----------------</td>
</tr>
<tr>
<td>12. Players are encouraged to outplay the other players.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. The coach has his or her own favourites.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. The coach makes sure players improve on skills they’re not good at.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. The coach yells at players for messing up.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16. Players feel successful when they improve.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17. Only the players with the best ‘stats’ get praise.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18. Players are punished when they make a mistake.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>19. Each player has an important role.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>20. Trying hard is rewarded.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>21. The coach encourages players to help each other.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>22. The coach makes it clear who he or she thinks are the best players.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>23. Players are ‘psyched’ when they do better than their team-mates in a game.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>24. If you want to play in a game you must be one of the best players.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>25. The coach emphasizes always trying your best.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>26. Only the top players ‘get noticed’ by the coach.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>ON THIS TEAM.....</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------</td>
<td>----------</td>
<td>---------</td>
<td>-------</td>
<td>----------------</td>
</tr>
<tr>
<td>27. Players are afraid to make mistakes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>28. Players are encouraged to work on their weaknesses.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>29. The coach favours some players more than others.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>30. The focus is to improve each game/practice.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>31. The players really ‘work together’ as a team.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>32. Each player feels as if they are an important team member.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>33. The players help each other to get better and excel.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Appendix C
Perceived Team Climate for Injuries

THE PERCEIVED TEAM CLIMATE FOR INJURIES

Directions: Athletic injury is a relatively common occurrence in the college sport setting. You, as an individual athlete, may or may not have experienced an injury. However, you have likely observed the experiences of players on your team who have been injured. The following statements describe different types of coaches’ attitudes, beliefs, reactions, and behaviors toward injured athletes on the team. Read each statement and rate the degree to which your coach exhibits these attitudes or behaviors towards injured athletes on your team. Circle the number that best represents how you feel.

<table>
<thead>
<tr>
<th>MY COACH.....</th>
<th>Not at all True</th>
<th>Not Often True</th>
<th>Sometimes True and Sometimes Not True</th>
<th>Mostly True</th>
<th>Very Much True</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Respects athletes who “play with pain”.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Tries to get injured athletes to return to play before they should.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Is understanding and sympathetic when athletes get injured.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Encourages injured athletes to do their rehab work.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Ignores or doesn’t pay much attention to injured athletes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Tries to keep injured athletes involved in the game by taking statistics, films, etc.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. Makes negative comments to the rest of the team about injured athletes who don’t push hard to come back.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. Acts as if he/she is angry at athletes who get injured.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Is very positive and encouraging when injured athletes first come back to play.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. Makes fun of injured athletes by implying that they are lazy or unmotivated.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. Makes sure that injured athletes still feel like part of the team.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>MY COACH.....</td>
<td>Not at all True</td>
<td>Not Often True</td>
<td>Sometimes True and Sometimes Not True</td>
<td>Mostly True</td>
<td>Very Much True</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>----------------------------------------</td>
<td>-------------</td>
<td>----------------</td>
</tr>
<tr>
<td>12. Acts like injured athletes should be ashamed of their inability to play.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. Isn’t very sympathetic when athletes get injured during play.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. Seems to think that injured athletes can never “come back” to play as well as they did before the injury.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. Understands that returning from an athletic injury can be hard at first.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16. Makes sure that injured athletes are still learning new offenses, defenses, and strategies right along with the rest of the team.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17. Tries to push injured athletes to come back before the athletic trainers and doctors think they should.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18. Seems to understand how hard it is to rehab some athletic injuries.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>19. Knows a lot about athletic injuries and can provide injured athletes with good advice about rehab.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>20. Tries to motivate injured athletes to keep up with, and work hard at their rehab.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>21. Listens to injured athletes and tries to understand what they are going through.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>22. Acts like injured athletes are no longer “real” or valued members of the team.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>23. Believes that “playing hurt” is a sign of good character in athletes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>24. Keeps reminding injured athletes that they may lose their playing position if they don’t come back fast.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>25. Acts like injured athletes are at least partly responsible for losses that the team had while that athlete was injured.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>26. tries to make injured athletes believe that the teammate replacing them is better than they are</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>MY COACH.....</td>
<td>Not at all True</td>
<td>Not Often True</td>
<td>Sometimes True and Sometimes Not True</td>
<td>Mostly True</td>
<td>Very Much True</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>----------------------------------------</td>
<td>-------------</td>
<td>----------------</td>
</tr>
<tr>
<td>27. keeps in close communication with injured athletes during the time they are out</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>28. acts like all injured athletes are “faking” or aren’t motivated enough to return to play</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>29. participates in the rehab process by suggesting ways the injured athlete can stay in shape for her/his sport</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>30. tries to work with athletic trainers and doctors to make sure injured athletes are getting adequate treatment and rehabilitation assistance</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>31. doesn’t always believe or trust athletes who say they are in pain</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>32. doesn’t seem to know much about injuries and shows no interest in helping injured athletes get through the rehab process</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>33. tries to prevent injured athletes from seeking medical help by telling athletes things like “just suck it up and play”</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Appendix D
Injury History Questionnaire

COLLEGE INJURY HISTORY
During your college sport career, have you missed any days of practice or any games/matches due to an injury?

____ YES
____ NO

If you checked “No” to the above question, you can skip directly to the NEXT page. If you checked “Yes” to the above question, describe the most serious of your college sport injuries by answering the following questions.

Briefly describe the most serious injury you have experienced during your college sport career. Be specific in describing the injury (e.g., part of body and type of injury).

What was the treatment for the injury you described above (check all that apply)?

___ ice
___ rest
___ surgery
___ strengthening exercises
___ flexibility exercises

How many days of practice did you miss due to the injury?

How many matches/games/meets did you miss due to this injury?

On the chart below, rate how successful your rehabilitation from this injury has been. That is, check below the statement that BEST describes your rehabilitation success.

AFTER THIS INJURY…..

_____ I never played again
_____ I played again, but in a limited role.
_____ I played again, but never got back to the level I was at before the injury.
_____ I played again, but it took a long time to reach the level I was at before.
_____ I played again, reached my previous level of performance, but still have some continuing problems (e.g., pain, swelling, re-injury).
_____ I played again, but have to use a brace, get taped, or use other preventative measures.
_____ My rehabilitation was completely successful (100% recovery).
_____ I am currently still injured and have not yet returned to play.
Appendix E
Recruitment Procedures

Dear Collegiate Coach:

Our research team appreciates your willingness and your assistance in arranging a time for us to collect survey data from the athletes on your team. We know how busy you are during your competitive season. Thus, we will try to be as efficient as we can in collecting this data from your team.

As explained to you earlier, our research team is conducting a rather large survey study during the 2006-2008 sport seasons to examine the self-perceptions of college athletes from all divisions. Specifically, we are planning to look at the changes that may occur over the competitive season in college athletes' perceptions of their sport competence as well as their motivational orientation, their stress levels, and their sport commitment. We are also planning to look at some factors that may affect or explain differences between athletes in their self-perceptions. These factors include athletes' year in school, their gender, as well as their perceptions of their team's climate (e.g., the team’s motivational orientation, and the team’s perceptions of different types of leadership styles and behaviors).

We will assure all athletes that their responses to our surveys will remain completely confidential (i.e., we will not ask for their name, playing position, uniform number or any other easily identifiable information).

As the coach of this team, you should also know that we will not look at, analyze, or report any of this data by individual team. Thus, the responses that your athletes provide us will be immediately combined with that of athletes from many other sports, and from many other colleges and universities across the country. We hope to collect data from at least 500 athletes.

At the completion of our study, we will send you a summary report of our results (not for your individual team but for the sample of 500 athletes as a whole). These results may be of interest to you, as they will focus on factors related to sport motivation and commitment in college athletes.

If you have any questions concerning this study, please contact me as listed below.

Again, we very much appreciate your willingness to help us collect this data.

Sincerely,

Thelma S. Horn
Associate Professor
SCRIPT TO BE USED IN CONTACTING COACHES (via email or phone)

Hello, Coach Smith (or Dear Coach Smith for email contact):

My name is Sarah Halbert. I am a Sport Studies graduate student at Miami University and am part of a research team sponsored by Dr. Thelma Horn, an associate professor at Miami University. Our research team is currently working on a series of research studies that are designed to identify or determine the characteristics and behaviors of effective coaches. This spring (or fall), we are hoping to administer a set of surveys to 500 or more college athletes. We are going to use the athletes' responses on these surveys to determine what coaching behaviors and leadership styles are most facilitative of athletes’ motivation, confidence, and emotional and physical well-being.

I am contacting you to see if you would be able and willing to let us talk with the athletes on your team to ask them if they will fill out our survey packet. It would only take them about 20 to 25 minutes to complete the surveys, and we won't be asking them to give us their names, their college's/university's name, or their coaches' name. Thus, we are going to be collecting this data in an anonymous format.

What we are asking you to do is help us schedule a 30-minute session with your team. We can do this before a practice session, after a practice session, or at any other time that would work for you and your athletes.

We do have to tell you that you and/or your assistant coaches cannot be present during our meeting with the athletes as we don't want the athletes to think that we (or you) are forcing them to fill out our survey. We want them to participate on a voluntary basis.

We also cannot provide you with the results of your athletes' responses to the survey. But, we can and will provide you with a summary of the results of our overall project after we have completed data collection. Specifically, we will send you a written report that summarizes what we found in this study. This report will tell you what we found for the athletes as a whole group - not for your team specifically. This information may be of interest to you and your assistant coaches because we are focusing in this project on identifying the characteristics and behaviors of effective coaches.

Do you have any questions?

Can we schedule a time for a meeting with your athletes?
Hello. My name is Sarah Halbert, and this is Jason Miller. We are graduate students in the PHS Department at Miami University in Oxford, Ohio. We are here today to ask each of you to participate in a research study that we, and Dr. Horn (a professor in the PHS Department at Miami University) are conducting to find out what you think of yourself as an athlete, why you are motivated to participate in your sport, and how you perceive your coach’s leadership style and behaviors in practices and games.

To be a participant in this study, you will need to fill out this survey that consists of a number of questionnaires asking you questions about yourself and your team. Filling out this set of questionnaires should take you about 20 to 25 minutes.

You should know that no one besides us, our co-investigators, and our academic advisor at Miami University, Dr. Horn, will ever see your answers. We are not even asking you to tell us your name, your school's name, your uniform number, or the position you play. Thus, no one (including ourselves) will be able to identify what answers you, as an individual athlete, provided to our questions. We do hope to write a paper or papers describing the results of this study. These papers would be published in research journals, but your name, your coach's name, and your school's name would never be identified because we are not even collecting this information.

It is also important for me to tell you that you do not have to participate in this study. That is, if you do not want to fill out the set of questionnaires, you do not have to do so. Also, if you start filling out the questionnaires and don't want to finish, you can quit at any time. We would then destroy your survey form.

We would really appreciate your help with this study as we are trying to find out more about the factors that affect the motivation, stress and confidence of college athletes. We are asking you, as athletes, for this information because we believe that you are in the best position to tell us what causes you to be motivated for sport participation.
SCRIPT TO BE USED IN CONTACTING MIAMI UNIVERSITY COURSE INSTRUCTORS (EDT 110 and PHS lab classes)

Hello (Instructor Name):

My name is Sarah Halbert. I am a Sport Studies graduate student at Miami University and am part of a research team sponsored by Dr. Thelma Horn, an associate professor in the PHS Department here at Miami University. Our research team is currently working on a series of research studies that are designed to identify or determine the characteristics and behaviors of effective coaches. This spring (or fall), we are hoping to administer a set of surveys to 500 or more college athletes. We are going to use the athletes' responses on these surveys to determine what coaching behaviors and leadership styles are most facilitative of athletes’ motivation, confidence, and emotional and physical well-being.

I am contacting you to see if you would be able and willing to give us five minutes at the end of one of your class sessions to talk with the student-athletes in your class to ask them if they will fill out our survey packet. It would only take them about 20 to 25 minutes to complete the surveys, and we won't be asking them to give us their names, their college's/university's name, or their coaches' or instructors’ names. Thus, we are going to be collecting this data in an anonymous format. We will give the student-athletes in your class the option of either staying after class to complete the survey packet or to take it home and return the completed questionnaire to us either at the beginning of the next class session or via campus mail in an envelope that we will give them.

What we are asking you to do is help us schedule a 5-minute session with the student-athletes in your class. We would prefer to do this at the end of a regularly scheduled class.

We do have to tell you that you, as the course instructor, cannot be present during our meeting with the student-athletes as we don't want the athletes to think that we (or you) are forcing them to fill out our survey. We want them to participate on a voluntary basis.

We also cannot provide you with the results of your student-athletes' responses to the survey. But, we can provide you with a summary of the results of our overall project after we have completed data collection. Specifically, we can send you a written report that summarizes what we found in this study. This report will tell you what we found for the athletes as a whole group - not for your class members specifically. This information may be of interest to you because we are focusing in this project on identifying the factors that affect the motivation and well-being of collegiate athletes.

Do you have any questions?

Can we schedule a time for a meeting with your student-athletes?
Hello. My name is Sarah Halbert, and this is Natalie Varacallo. We are graduate students in the PHS Department at Miami University in Oxford, Ohio. We are here today to ask each of you to participate in a research study that we, and Dr. Horn (a professor in the PHS Department) are conducting to find out what you think of yourself as an athlete, why you are motivated to participate in your sport, and how you perceive your coach’s leadership style and behaviors in practices and games.

To be a participant in this study, you will need to fill out this survey that consists of a number of questionnaires asking you questions about yourself and your team. Filling out this set of questionnaires should take you about 20 to 25 minutes. If you have the time now to complete the questionnaires, that would be good. However, if you would prefer to take the questionnaire packet home with you and fill it out there, that is also O.K. with us. If you want to do that, we will give you a self-addressed envelope. Once you complete the survey packet, you can put it in the envelope, seal it up, and put it in campus mail. It will be returned to us. Alternatively, you can take the questionnaire packet home, complete it there, and return it to us at the next class session.

You should know that no one besides us, our co-investigators, and our academic advisor at Miami University, Dr. Horn, will ever see your answers. We are not even asking you to tell us your name, your school's name, your uniform number, or the position you play. Thus, no one (including ourselves) will be able to identify what answers you, as an individual athlete, provided to our questions. We do hope to write a paper or papers describing the results of this study. These papers would be published in research journals, but your name, your coach's name, and your school's name would never be identified because we are not even collecting this information.

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