

1999

A Study of the Relationship Between Personality Type and Emotional Response to Athletic Injury

Jasmin C. R. Hutchinson

Eastern Illinois University

This research is a product of the graduate program in [Physical Education](#) at Eastern Illinois University. [Find out more](#) about the program.

Recommended Citation

Hutchinson, Jasmin C. R., "A Study of the Relationship Between Personality Type and Emotional Response to Athletic Injury" (1999). *Masters Theses*. 1673.
<https://thekeep.eiu.edu/theses/1673>

This is brought to you for free and open access by the Student Theses & Publications at The Keep. It has been accepted for inclusion in Masters Theses by an authorized administrator of The Keep. For more information, please contact tabruns@eiu.edu.

THESIS REPRODUCTION CERTIFICATE

TO: Graduate Degree Candidates (who have written formal theses)

SUBJECT: Permission to Reproduce Theses

The University Library is receiving a number of request from other institutions asking permission to reproduce dissertations for inclusion in their library holdings. Although no copyright laws are involved, we feel that professional courtesy demands that permission be obtained from the author before we allow these to be copied.

PLEASE SIGN ONE OF THE FOLLOWING STATEMENTS:

Booth Library of Eastern Illinois University has my permission to lend my thesis to a reputable college or university or the purpose of copying it for inclusion in that institution's library or research holdings.

07-29-99
Date

I respectfully request Booth Library of Eastern Illinois University **NOT** allow my thesis to be reproduced because:

Author's Signature

Date

A Study of the Relationship Between Personality
Type and Emotional Response to Athletic Injury
(TITLE)

BY

Jasmin C.R. Hutchinson

1976 -

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

Master of Science

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

1999
YEAR

I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING
THIS PART OF THE GRADUATE DEGREE CITED ABOVE

7/27/99
DATE

9/27/99
DATE

Abstract

This investigation was designed to examine emotional response to athletic injury using personality constructs within reversal theory. Twenty-five (male = 19, female = 6) collegiate athletes, ranging in age from 18 to 22 years (mean = 19.95, SD = 1.11) who sustained a minimal criteria injury during a six-week data collection period participated in this study. Each athlete's total mood disturbance (TMD) was measured pre-injury and post-injury using the Profile of Mood States (POMS). Athlete's personality orientation was measured using the Paratelic Dominance Scale (PDS). A dependent t-test indicated a significant increase in TMD scores following injury ($p < 0.05$), thus indicating overall mood disturbance in injured athletes. An independent t-test comparing paratelic and telic dominant athletes on TMD difference scores revealed non-significant results ($p = 0.40$). Methodological and theoretical reasons for this are examined and implications for further study of reversal theory and athletic injury are discussed.

Dedication

This thesis is dedicated to the memory of my grandad,

John Hutchinson.

Acknowledgements

I would like to extend my sincere appreciation to Dr. William Russell for his guidance and direction in the completion of this study.

Appreciation is also extended to the coaching and athletic training staff at Eastern Illinois University for their patience and co-operation, and to all the athletes who kindly participated in this study.

To my friends, Tracey Phillips and Lisa Almaguer, this year would not have been the same without you. Thankyou for the wonderful memories.

Finally, I am most indebted to my parents, John and Carol Hutchinson. Mum and dad, thankyou for the support, encouragement and belief that you have always shown to me throughout all my academic endeavors.

Table of Contents

CHAPTER I INTRODUCTION

Psychological Aspects of Athletic Injury.	1
Reversal Theory	4
Purpose	10
Hypotheses.	10
Assumptions	11
Delimitations	11
Definition of Terms	12

CHAPTER II REVIEW OF LITERATURE

Psychological Aspects of Athletic Injury.	14
Reversal Theory	24

CHAPTER III METHODS

Subjects.	30
Instrumentation	31
Profile of Mood States	31
Paratelic Dominance Scale.	31
Procedures.	33
Data Analysis	35

CHAPTER IV	RESULTS	37
CHAPTER V	DISCUSSION.	42
REFERENCES		56
APPENDICES		
Appendix A - Profile of Mood States		70
Appendix B - Paratelic Dominance Scale.		72
Appendix C - Cover Letters.		75
Appendix D - Consent Form		78
Appendix E - Injury Sheet		80
Appendix F - Raw Data		82

List Of Tables

TABLE 1. Means and standard deviations for
pre-injury POMS TMD scores, post-injury POMS TMD scores and
POMS difference scores. 37

TABLE 2. Means and standard deviations for
TMD difference scores and PDS scores of telic
and paratelic dominant athletes. 39

TABLE 3. Means and standard deviations for
post-injury POMS tension and depression scores
of telic and paratelic dominant athletes 41

Chapter I

Introduction

Sport participation carries a certain risk of injury for both athletes and recreational exercisers. A population survey conducted in the United Kingdom revealed that sport/exercise was the single leading source of physical injury experienced by all respondents, accounting for approximately one-third of all injuries (Uitenbroek, 1996). Furthermore, of the eight million students involved in athletics in the United States, an estimated two million (25%) will be injured each year (Murray, 1992).

Studies of sports injury have traditionally been conducted from a physiological perspective, and there is a wealth of information about the physical factors pertaining to sports injury (Arendt & Dick, 1995; Wilkinson, 1998). The idea that injury can also be studied from a psychological perspective is a fairly recent one; therefore this is a promising and fruitful area for investigation.

Psychological Aspects of Athletic Injury

This study was primarily concerned with an athlete's emotional response to injury, and thus holds implications for psychological interventions in injury rehabilitation.

The importance of considering psychological aspects of injury rehabilitation has been highlighted in the sport literature (Leddy, Lambert & Ogles, 1994; Macchi & Crossman, 1996; Quackenbush & Crossman, 1994; Smith 1996) and in the health literature (Stone, 1997). Stone (1997) for example, highlights the importance of addressing the needs of patients who may have doubts about their recoveries, patients who are fearful of returning to sport, and patients who return to sport only to suffer recurrent injury. For such patients, the psychological effects of injury may be debilitating and profound, and may ultimately lead to cessation of athletic activity. Thus, it is imperative that awareness and understanding of psychological aspects of injury be developed and subsequently implemented into a comprehensive rehabilitation program.

The domain of sports related injury has received recent attention in the sport psychology literature, however, research on this subject remains in its infancy (Smith, 1996). Accordingly, much more research attention needs to be directed toward the psychological aspects of injury rehabilitation in sport (McDonald & Hardy, 1990) in order for medical professionals, teachers and coaches to

develop a greater appreciation of the potential impact of injury on athletes.

The psychological consequences of sport injury have been reported to encompass cognitive, emotional and behavioral responses (Wiese-Bjornstal, Smith & LaMott, 1995). Post-injury cognitive appraisals are often linked with self-perceptions. Chan & Grossman (1988) found that self-esteem was significantly lower in injured runners than in non-injured runners. In addition, Connelly (1991) examined football skill efficacy pre-injury and post-injury and found a dramatic loss of football skill efficacy as a result of injury. These self-perceptions have been found to impact emotional and behavioral response to athletic injury (Wiese-Bjornstal, Smith, Schaffer & Morray, 1998). The emotional response to athletic injury is of particular relevance to the current study. Studies in this area have examined emotional response to injury as a function of mood disturbance in injured athletes. Injured athletes have shown increases in anger and depression during rehabilitation (Chan & Grossman, 1988; Grove, Stewart and Gordon, 1990; Smith, Scott, O'Fallon & Young, 1990). Additionally, injured athletes have been found to display significantly higher levels of total mood disturbance when compared to control groups (McDonald & Hardy, 1990; Pearson

& Jones, 1992) and to pre-injury states (Smith et al, 1993; Leddy, Lambert & Ogles, 1994).

In this study, the emotional response to injury as it is related to personality type was investigated. Knowledge of an individual's personality type may be useful to the extent that it helps practitioners anticipate and deal with the athlete's thoughts, emotions and behaviors during rehabilitation (Grove, 1993), and may be used to develop individualized post-injury interventions. This should enable sport psychologists and medical practitioners to develop more comprehensive rehabilitation programs that are tailored to the individual and that recognize the impact of psychological and physiological variables within athletic injury. It is hoped that this will improve compliance rates to such programs, while simultaneously improving an athlete's psychological adjustment to the potential trauma of an athletic injury.

Reversal Theory

Personality type is defined in this study according to two basic personality orientations proposed by reversal theory; telic and paratelic orientation. Reversal theory originated in the 1970s in the work of M.J.Apter and K.C.P. Smith (Apter, 1976; 1979; Smith & Apter, 1975) and has

since been extensively elaborated (Apter, 1982; 1989; 1990). Reversal theory has been applied to numerous aspects of human behavior and has been popularized in the European sport psychology literature (Kerr 1985; 1987; 1990; 1997). The theory hypothesizes that an individual's motivational processes are governed by eight different metamotivational states, organized into four bipolar pairs (Kerr, 1997). These states are described as metamotivational because they describe the way in which motives are experienced; these motives are largely a function of the athlete's subjective interpretation of a given event. The pairs of states are also described as bistable, meaning that an individual can only experience one or the other polarity of each pair at a given time (Males, Kerr & Gerkovich, 1998).

The four pairs of metamotivational states identified as descriptive of human behavior are the telic-paratelic, negativistic-conformist, mastery-sympathy, and autic-alloic pairs. To date reversal theory research, especially within the area of sport, has focused primarily upon the telic-paratelic pair because they account for the experience of arousal and activation, which are key constructs in sports-based research (Kerr, 1993). Within this study personality is defined within the telic-paratelic pair, athletes are

described as being either telic or paratelic dominant, meaning that their personality is dominated by one of these metamotivational orientations.

Telic and paratelic orientations are transient modes, meaning that individuals have a tendency to fluctuate between these orientations. The mindset in the telic mode is serious and goal directed, while in the paratelic mode one's mindset tends to be fun loving and orientated toward the "here-and-now". The essence of reversal theory is that individuals have the ability to "switch" orientation between a telic and a paratelic state, and do so on a regular basis. However, as a general rule, individuals can be described as being dominant in one particular orientation (Kerr, Murgatroyd & Apter, 1993). The approach taken by reversal theory toward arousal and affect is of particular relevance to the area of athletic injury. Within reversal theory arousal is defined as "felt arousal" which includes both psychological and physiological aspects of arousal, and encompasses both positive and negative affective states, (Kerr, 1997).

One basic tenet of reversal theory is that the relationship between arousal and affect is dependent upon one's cognitive interpretation of felt arousal. The traditional view of arousal is a homeostatic one (Hebb,

1955) which holds that people have a certain "optimal" level of arousal that they try to maintain. When their arousal is too low individuals react with a perception of boredom, and when it is too high they respond with anxiety. Thus, traditional theories of arousal maintain that only when arousal levels are moderate is psychological comfort and performance maximized. Reversal theory recognizes that people experience high and low unpleasant arousal, but also recognizes that high and low arousal can actually be experienced as pleasant, depending on one's cognitive appraisal of these states (Kerr, Murgatroyd & Apter, 1993).

With regard to arousal there are four possibilities for cognitive appraisal of felt arousal: high arousal may be interpreted as pleasant (excitement) or unpleasant (anxiety), and low arousal may be interpreted as pleasant (relaxation) or unpleasant (boredom). This subjective experience is moderated by one's metamotivational orientation. Individuals in the telic state tend to experience elevated arousal negatively (as anxiety provoking), so telic-dominant individuals have a preference for low levels of arousal and are described as "arousal avoiding". In contrast, elevated arousal within the paratelic state is experienced positively (as excitement). As paratelic-dominant individuals perceive high levels of

arousal as pleasant they are described as "arousal seeking".

Within reversal theory a discrepancy between the preferred and actual level of a variable is recognized as a source of tension, which can lead to stress. This form of stress is known as tension-stress and could be brought about as a result of a discrepancy between the preferred and actual level of felt arousal (Kerr, 1997). Consequently, stress arising from excessive demand (arousal levels higher than preferred) is known as telic tension-stress while stress arising from insufficient demand (arousal levels lower than preferred) is known as paratelic tension-stress.

In athletic injury the argument may be made that an athlete who sustains an injury would be restricted to a state of low arousal, as this athlete is forced into a non-participation situation or controlled rehabilitation regimen. If an athlete is paratelic-dominant then being forced into such a situation of low arousal will lead to a greater relative discrepancy between his/her preferred and actual level of felt arousal, leading to boredom and frustration, which will result in paratelic tension-stress. In contrast, an athlete who possesses a more telic orientation will experience less of a discrepancy between

his/her preferred and felt level of arousal, and thus will presumably perceive the situation as less stressful. This is not to say that telic-dominant individuals will view an athletic injury as pleasant, but rather that an athletic injury will be perceived as more unpleasant and more stressful by an athlete who is paratelic-dominant, based upon the assumption that this athlete is removed from active practice and competition and thus compelled to a situation of low arousal. One would therefore expect to see greater levels of total mood disturbance in injured athletes who are paratelic-dominant than in athletes who are telic dominant.

This hypothesized relationship could hold important implications for the rehabilitation process. Knowledge of an individual's metamotivational dominance (i.e. telic or paratelic dominant) could enable practitioners to anticipate an athlete's psychological response to injury, and to guide individualized psychological rehabilitation interventions. This information could also be useful in preparing an adapted rehabilitation program, modified toward the athlete's particular personality orientation. Telic individuals, for example, tend to be problem focused and goal directed, and are therefore presumably more likely to adhere to a structured rehabilitation program.

Meanwhile, adherence could be improved in paratelic-dominant individuals through active involvement in their own recovery, (i.e. setting challenges and varying the program in order to prevent boredom).

To date, the relationship between reversal theory and response to athletic injury has not yet been examined. Thus, this investigation was designed to examine emotional response to athletic injury using personality characteristics within reversal theory.

Purpose

The purpose of this study was to examine the emotional response of college athletes to athletic injury, and to examine the relationship between the extent of post-injury total mood disturbance and personality orientation as defined by reversal theory.

Hypotheses

1. Athletes will have significantly elevated total mood disturbance following injury, as measured by difference scores on the Profile Of Mood States (POMS).
2. Paratelic dominant individuals will display a greater increase in negative mood disturbance following injury

than will telic dominant individuals, as indicated by higher POMS difference scores.

Assumptions

It is assumed that athletes who become injured will incur at least a minimal amount of non-playing time. It is also assumed that injured athletes responded to the inventories accurately and without bias, and that athletic trainers were precise in logging injury information.

Delimitations

This study examined the mood state and personality orientation of collegiate athletes in the following team sports at Eastern Illinois University; men's track and field, women's track and field, men's tennis, women's tennis, women's rugby, men's spring football and women's softball. These particular teams were selected for inclusion in this study because they were involved in active competition during the six-week data collection period.

This study limited analysis of reversal theory to only one pair of states (telic-paratelic) and did not look at other bistable pairs (negativistic-conformity, autic-alloic, mastery-sympathy). The analysis was limited to the

telic-paratelic pair because of reversal theory literature that has deemed this pair to be most pertinent to athletic performance.

Definition of Terms

Injury - Physiological damage or body pain that restricts activity for at least one day after injury and requires medical attention (Smith et al., 1993).

Severity I Injury - Mild pain and mild physiological damage. Participation restricted for 1-5 days (NCAA, 1996).

Severity II Injury - Moderate pain and moderate physiological damage. Participation restricted for 2-3 weeks (NCAA, 1996).

Severity III Injury - Severe pain and severe physiological damage. Participation restricted in excess of 3 weeks (NCAA, 1996).

Telic Dominant - Individuals who have a low score on the Paratelic Dominance Scale (PDS). Typically they will have a serious minded and goal directed orientation towards life.

Paratelic Dominant - Individuals who score highly on the PDS. Typically they will be fun loving and have a "here-and-now" orientation towards life.

Total Mood Disturbance - Total score on the Profile Of Mood States (POMS) Inventory.

Difference Score - The difference between pre-injury total mood disturbance and post-injury total mood disturbance, as measured by the POMS.

Chapter II

Review of Literature

Psychological Aspects of Athletic Injury

The study of the psychology of sports injury has primarily been concerned with the area of injury prediction, response to injury, and adherence to injury rehabilitation programs. A major breakthrough in the literature related to injury prediction was the development of a multi-component theoretical model of stress and injury (Williams & Andersen 1986; Andersen & Williams 1988). This model proposes that a number of psychological variables contribute interactively, or in isolation, to the stress response. The stress response is thought to have a direct impact on the risk of injury, with an elevated stress response resulting in increased likelihood of injury occurrence (Andersen & Williams, 1988).

Psychological variables contributing to the stress response have been placed into three categories: personality factors (i.e. hardiness, locus of control, sense of coherence, competitive trait anxiety, achievement motivation, sensation seeking); history of stressors (i.e. life event stress, daily hassles, past injuries); and

coping resources (i.e., general coping behaviors, social support, stress management and mental skills, and medication). The stress-injury model hypothesizes that

"individuals with a history of many stressors, personality characteristics that exacerbate the stress response and few coping resources will, when placed in a stressful situation, appraise the situation as more stressful and exhibit greater psychological activation and attentional disruptions compared to individuals with the opposite psychological profile" (Williams & Andersen 1998, p6).

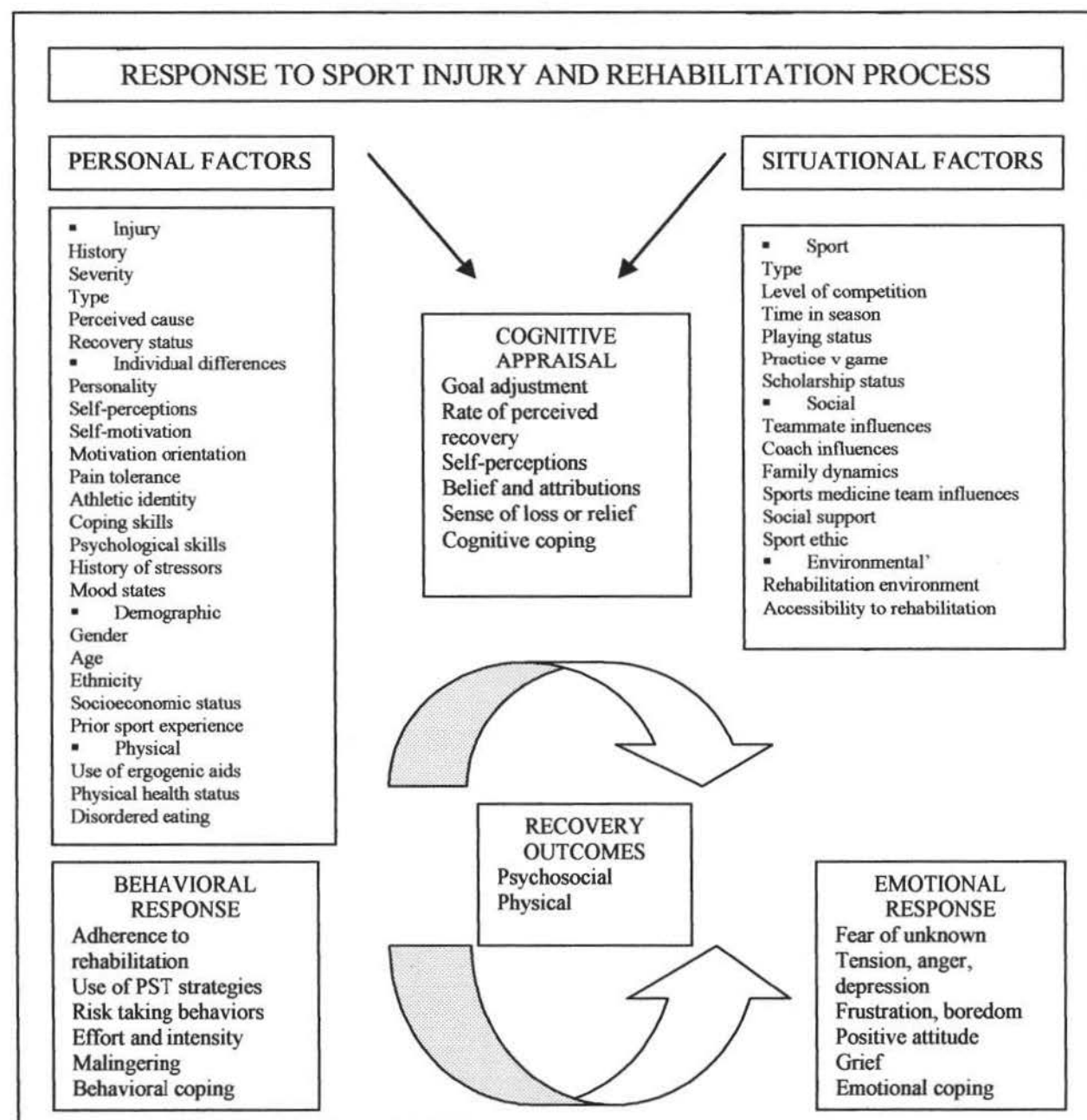
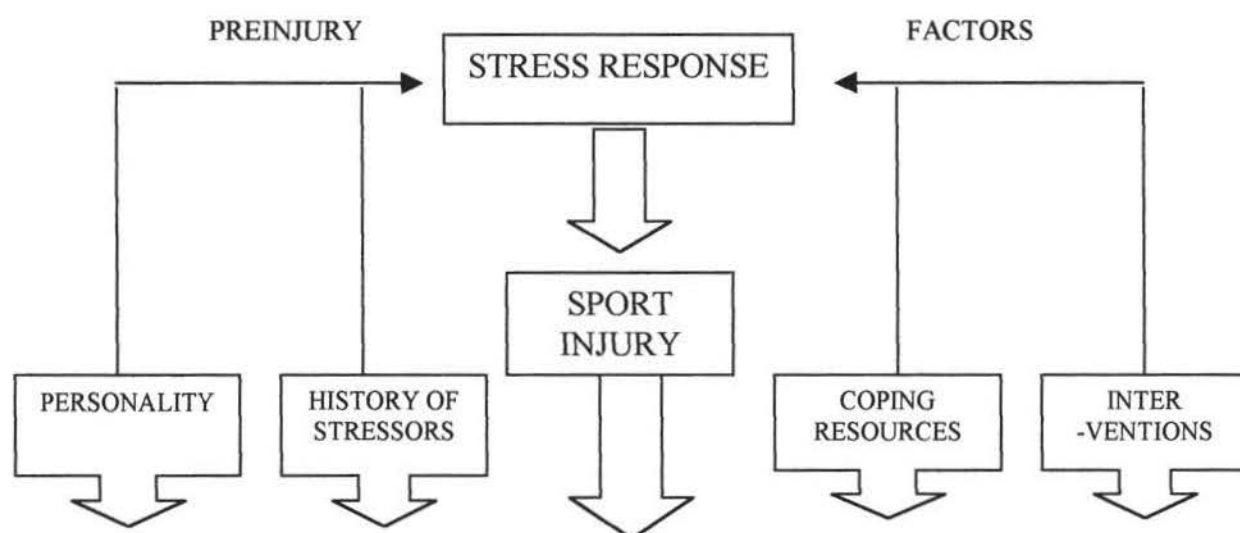
An elevated stress response typically leads to increased muscle tension, narrowing of the visual field and increased distractibility, which places athletes at greater risk of injury (Andersen and Williams, 1988).

Of primary importance to this particular study is literature regarding the psychological response to athletic injury. Weiss and Troxel (1986) first identified the importance of examining personal and situational factors affecting athletes' responses to injury. In the face of limited empirical evidence, these authors linked their model of psychological response to injury to research from related areas of sports stress such as sport anxiety. This model considers injury as a stressor that prompts cognitive appraisals. These cognitive appraisals are thought to subsequently influence emotional, behavioral and

attentional responses (Wiese-Bjornstal, et al., 1995). Recent adaptations of the stress process and cognitive appraisal models have extended the pre-injury model of Andersen and Williams (1988) into the post-injury phase. Wiese-Bjornstal et al. (1998) developed an integrated model of the response to sport injury (Figure 1). This integrated model posits that pre-injury (Andersen & Williams, 1988) and post-injury (Wiese-Bjornstal, et al., 1995) factors influence psychological response, and that this psychological response changes over time. Within this model both personal and situational factors are hypothesized to moderate cognitive appraisals in the post-injury state. These cognitive appraisals affect subsequent emotions, which in turn, affect behaviors, such as adherence to rehabilitation, effort and intensity, and malingering. While this is the theorized path of influence the bi-directional arrows at the center of the model indicate that influences in the reverse direction are also possible (Wiese-Bjornstal et al., 1998).

Cognitive appraisals which have received the most research attention are those related to athletic self-perception. Heil (1993) observed that because athletes are so dependent upon their physical skills and because their identities are so wrapped up in their sport, injury can be

FIGURE 1 - AN INTEGRATED MODEL OF RESPONSE TO SPORT INJURY



tremendously threatening to their self-identity. Indeed, Macchi & Crossman, (1996) commented that "the potential impact of an injury to the participant's life cannot be overstated." Possible reasons for this are that athletes have perceptions of self which are based largely upon their physical and athletic capabilities (Kane, 1984; Taylor & Taylor, 1997) and are socialized into pushing their physical capabilities to the limits (Coakley, 1994). Accordingly, it would appear likely that injury will have a detrimental effect upon an athlete's self-worth (Booth, 1990; Kerr, 1990; May et al., 1985; McGowan et al., 1994; Thomas & Rintola, 1989).

Studies testing this assumption have revealed conflicting results. Chan and Grossman (1988) found that self-esteem was significantly lower in injured runners than in those not injured, and McGowan et al. (1994) showed significant decreases in global self-worth scores in injured football players compared to non-injured players. In contrast, athletes from a range of NCAA Division I sports did not demonstrate pre-injury/post-injury differences in self-esteem (Smith, et al., 1993). Similarly, Brewer and Petrie (1995) failed to show differences between injured and non-injured college football players using a global measure of self-esteem.

Findings concerning self-efficacy, a belief in oneself as competent and effective in specific situations, have been more consistent. For example, Connelly (1991) examined pre-injury and post-injury football skills efficacy, and reported a dramatic loss of football skills efficacy as a result of injury. These self-perceptions are important in that they have a notable influence on the emotional and behavioral response to sports injury.

The emotional response to injury had been largely neglected by researchers until the late 1980s and early 1990s. Up to this time it was assumed (Gordon, 1986; Pedersen, 1986; Samples, 1987) that injured athletes progress through a grief cycle similar to that experienced by the terminally ill (Kubler-Ross, 1969). A methodological limitation of this approach was that the Kubler-Ross and other loss-of-health models were derived from patient populations very different from injured athletes (Smith, Scott, & Weise, 1990). Consequently, Smith et al. (1990) highlighted the need to examine the actual responses of athletes to injury rather than assuming that the emotional responses will parallel those of the terminally ill. One of the first such studies was conducted by Chan and Grossman (1988) who used the Profile of Mood States (POMS), (McNair, Lorr & Dappleman, 1974) and

the Rosenberg Self-Esteem Inventory (RSE) (Rosenberg, 1968) to assess the mood state of injured and non-injured runners. The injured runners (out of running for two weeks) showed significantly more depression, tension, and confusion on POMS subscale scores and lower self-esteem on the RSE than did the non-injured runners. It was suggested that the injured runners were deprived of the stress management benefits of a running program.

Smith, Scott, O'Fallon and Young (1990) used the POMS and the Emotional Response of Athletes to Injury Questionnaire (ERAIQ) (Smith, Scott, & Weise, 1990) to assess the mood state of injured athletes. Injured athletes were found to have significantly higher levels of both depression and anger when compared with college norms. In addition, significant differences were found according to severity of injury with the most severely injured athletes showing the greatest total mood disturbance, as recorded by the POMS.

McDonald and Hardy (1990) utilized the POMS to assess emotional response over time in five injured Division I athletes, from injury onset until return to sporting activity. Initial increases in negative mood were found to improve in parallel to athletes' perceived recovery. More recently, Pearson and Jones (1992) studied 61 injured and

61 non-injured athletes using a bipolar form of the POMS (Lorr & McNair, 1984). When scores of the injured group were compared with both those of the non-injured group and college norms, the injured group was significantly more disturbed on every negative subscale.

A limitation to these early studies was highlighted by Smith et al (1993) who noted that these studies lacked pre-injury mood profiles, meaning that mood disturbance could not be attributed directly to the effect of injury. Smith et al (1993) addressed this concern by attempting to establish whether differences were evident between pre-injury and post-injury mood state and self-esteem. Pre-injury data were gathered from athletes prior to the start of the competitive season using the ERAIQ and POMS. When injuries occurred during the same season, injured athletes were asked to complete a modified ERAIQ and POMS. Significant differences were found in pre-injury and post-injury POMS subscales of depression, anger, and vigor. The authors suggested that the results of these pre-injury and post-injury comparisons support earlier studies that used the POMS (Chan & Grossman 1988; Smith et al 1990; McDonald & Hardy 1990; Pearson & Jones 1992), and concluded that post-injury mood disturbance could be attributed to injury.

Leddy, Lambert and Ogles (1994) further advanced understanding of the emotional response to athletic injury by using clinical psychometric instruments to assess Division I athletes pre- and post-injury and comparing these findings to a non-injured control group. It was found that injured athletes exhibited greater depression and anxiety and lower self-esteem than controls immediately following injury and at follow up two months later.

Smith (1996) observed that the Leddy et al. (1994) study addresses an important limitation of the Smith et al. (1993) study. Namely, that while differences in pre- and post-injury depression and tension scores seem to be attributable to injury, the argument could be made that a number of extraneous factors, such as a losing season, or a poor coach-athlete relationship could also contribute to an increase in these negative mood states. Leddy et al. (1994) controlled for this limitation by testing selected non-injured athletes every time injured athletes were tested. The fact that significant differences in depression, anxiety and self-esteem were reported further reinforces the notion that post-injury mood disturbance is a consequence of injury.

From an intervention standpoint it is expected (Grove, 1993) that knowledge of an individual's personality type

will help practitioners to anticipate and deal with athlete's thoughts, emotions and behaviors during rehabilitation. Grove, Stewart and Gordon (1990) examined three personality factors (explanatory style, dispositional optimism, and hardiness) that are thought to affect an athlete's thoughts, physical reactions and/or behavior during rehabilitation. Grove et al (1990) investigated these factors using a sample of 21 athletes who required knee surgery. Personality factors were indeed found to affect mood states following surgery. Specifically, depression ($p < .05$) and anger ($p < .05$) were greater in athletes with a pessimistic explanatory style than for those with a non-pessimistic style. In addition, injured athletes with high optimism scores displayed non-significant trends toward less depression ($p = .12$) and lower levels of confusion ($p = .15$) than did athletes with lower optimism scores.

While these findings are promising, this area requires further investigation. A gap exists in the literature between personality and emotional response to injury, as noted by a number of authors (Andersen & Williams, 1993; Pargman, 1993). The current study attempted to explore the ability of reversal theory to explain the relationship between emotional response to injury and personality.

Reversal Theory

Reversal theory is a general psychological theory of personality and motivation developed by Michael Apter (1982). In recent years this theory has been extensively elaborated (Apter, 1989; 1990; 1992) and has been applied to numerous aspects of human behavior and experience including, but not limited to, stress, humor, sport, health behaviors, addictions, and clinical depression. Reversal theory is based upon what is known as the "structural-phenomenological approach to motivation" (Apter, 1981; 1982). The phenomenological aspect of this approach is concerned with subjective or perceived experience, while the structural aspect deals with the way in which individuals structure this experience.

Perhaps the two most important concepts in reversal theory are metamotivational states and reversals between these states (Kerr, 1997). Metamotivational states are distinct psychological states of mind that determine how felt arousal is experienced at a given moment in time. In essence, these states determine our experience of our motives. According to reversal theory there are eight bistable metamotivational states, organized into four bipolar pairs of states; these are the telic-paratelic,

negativistic-conformist, mastery-sympathy and autic-alloic pairs. In the negativist state people tend to be rebellious, stubborn and defiant and feel a strong need to break rules or to react against any outside imposition. In contrast, the conformist state is characterized by behavior which is generally agreeable and co-operative and a compliance with rules or requirements. Mastery, as it's name suggests, involves being masterful, and gaining control over one's situation. The opposite state to this is sympathy, characterized by willingness to co-operate, empathy for others and feelings of harmony and unity. The autic-alloic pair of states focus upon interactions with others, in the autic state people are concerned with themselves and focus upon their own feelings, conversely in the alloic state individuals are concerned with other people and focus upon the feelings of others (Kerr, 1997).

A key feature of reversal theory is that each state is opposite to another state and that individuals tend to switch, or reverse, from one state to its opposite on a regular basis. The two states of a pair are said to be

"mutually exclusive and exhaustive: A person is always in one state or another, never both at the same time or neither one" (Frey, 1997, p5).

To date, the majority of reversal theory research, especially within the area of sport and exercise, has focused on the telic-paratelic pair of metamotivational states. When in the telic state individuals are typically serious minded, future oriented, goal directed and have a preference for low levels of felt arousal. The opposite is true of individuals in the paratelic state. In the paratelic state individuals tend to be playful, concerned with the present, activity oriented and have a preference for high levels of felt arousal. Empirical evidence supports this concept of arousal seeking being associated with the paratelic state. These include delinquent activities; (Bowers, 1985) gambling behavior; (Anderson & Brown, 1987) soccer hooliganism; (Kerr, 1988) and participation in high risk sports (Kerr, 1990).

Although it is the essence of reversal theory that individuals frequently reverse between opposite metamotivational states, it is suggested that each person spends relatively more time in one of the states than in its opposite, referred to as the concept of mode dominance. An individual who spends more time in the telic state than average is described as telic-dominant whereas an individual who spends more time in the paratelic state is

described as paratelic-dominant. Apter and Apter-Deselles (1993) noted that

"the concept of dominance is a key concept in reversal theory and distinguishes the theory from traditional trait theories in personality psychology" (p107).

Hence, while traits tend to be stable, enduring aspects of one's personality, dominance simply suggests that a person spends more time in that particular state, and that individuals are constantly motivated to engage in behavior to maintain that particular mode.

In order to establish the hypothesized relationship between metamotivational dominance and emotional response to injury it is necessary to examine reversal theory accounts of stress. Within reversal theory, stress is thought to arise as a result of tension. Tension has been defined as "a discrepancy between the preferred and actual level of a variable [such as arousal]" (Kerr, 1997). This form of stress is referred to as tension-stress. In the case of arousal discrepancy two forms of tension-stress are possible; stress arising from too high of a demand (arousal levels higher than preferred, leading to anxiety) is known as telic tension-stress. Stress arising as a result of too low of a demand (arousal levels lower than preferred,

leading to boredom) is known as paratelic tension-stress (Apter, 1989). According to this definition,

"stress results not from arousal levels that are too high or too low, but because these levels are too high or too low in relation to two different preferred levels of arousal" (Kerr, 1997, p157).

Empirical evidence appears to be supportive of the predications of reversal theory. LaFreniere (1997) found that telic dominant individuals reported greater perceived stress when experiencing a high number of daily hassles as compared with those who were paratelic dominant.

Biological response patterns have also indicated a difference between paratelic and telic individuals when faced with threat and everyday hassles (Martin & Svebak, 1997). Specifically, this study revealed extended support for the contention that telic dominant individuals have a preference for low levels of arousal, whereas paratelic dominant individuals prefer high levels of arousal.

Moreover, that stress will result when a discrepancy exists between an individuals preferred and actual level of arousal.

Reversal theory accounts of arousal discrepancy and stress can be logically applied to the area of athletic injury. As previously discussed, injured athletes display increases in mood disturbance following injury. One

possible, and as yet undocumented, explanation for this may be that in sustaining an injury an athlete is removed from physical activity and competition, and is accordingly denied the opportunity for experiencing the positive high levels of felt arousal that frequently accompany participation in sport. To the contrary, this athlete is in an imposed situation of low arousal relating to activity in their sport. For an athlete who is paratelic dominant a discrepancy is created between preferred and actual levels of felt arousal, this discrepancy can ultimately lead to paratelic tension-stress, the manifestations of which may be the increased mood disturbance which has been observed in much of the related literature.

Chapter III

Methods

The purpose of this study was to examine the emotional response of college athletes to athletic injury and to examine the relationship between extent of post-injury mood disturbance and personality orientation as defined by reversal theory.

Subjects

The target population for this study was all intercollegiate athletes involved in spring semester sports at Eastern Illinois University who sustained a minimal criteria athletic injury during a six-week data collection period. Twenty-five (male=19, female=6) Division I athletes met this criteria and were included in the study. Subjects, when separated into their respective events, represented the following sports: men's track and field (n=5), women's track and field (n=1), men's tennis (n= 2), women's tennis (n=1), women's rugby (n= 3), men's spring football (n= 12) and women's softball (n=1). Subjects ranged in age from 18 to 22 years (mean = 19.95 SD= 1.11).

Instrumentation

Profile Of Mood States

Mood disturbance was measured using the Profile of Mood States (POMS) (McNair, Lorr & Droppleman, 1971). The POMS (Appendix A) is a 65-adjective rating scale, derived through factor analysis, which measures six identifiable mood or affective states: tension, depression, anger, vigor, fatigue and confusion. The POMS is scored positively on all subscales except for vigor, which is scored negatively. Total POMS scores indicate total mood disturbance, with a higher score indicating higher mood disturbance. The advantages of the POMS include its speed and ease of administration (approximately five minutes to complete) as well as its face validity (Eichman, 1978). The POMS has been widely used in athlete populations, including studies regarding the emotional response to injury (e.g. Chan & Grossman, 1988; McDonald & Hardy, 1990; Pearson & Jones, 1990; Smith, Scott & O'Fallon, 1990; Smith, Scott, O'Fallon & Young, 1990; Smith, Stuart & Wiese-Bjornstal, 1993).

Paratelic Dominance Scale

Personality orientation was measured using the Paratelic Dominance Scale (PDS) (Cook & Gerkovich, 1993).

The PDS (APPENDIX B) was developed in response to concerns that had been raised with the Telic Dominance Scale (TDS). The TDS (Murgatroyd, Rushton, Apter & Ray, 1978) had been used previously in the majority of empirical studies of dominance in the telic / paratelic pair, but later studies revealed limitations of the TDS, including cultural differences and low test-retest reliability (Apter, 1982; Murgatroyd, 1985). This led to the conclusion (Cook & Gerkovich, 1993) that the TDS is no longer an optimal measure for telic dominance.

The PDS has three theoretically derived subscales related to paratelic orientation: playfulness, spontaneity and arousal seeking. For each subscale the possible range of scores is 0-10; the range for the PDS as a whole is 0-30 (Cook, Gerkovich, O'Connell & Keele, 1999). A higher PDS score represents increasing paratelic dominance, thus, the PDS provides a more direct measurement of paratelic dominance. The internal reliability of PDS subscales was established in initial standardization samples, in which alpha coefficients ranging from .75 to .87 were reported (Cook & Gerkovich, 1993). Thus it would appear that the PDS is an improved instrument for measuring the telic / paratelic pair within reversal theory (Cook, Gerkovich, O'Connell & Keele, 1999).

Procedures

Initial contact was made to both coaching staff and athletic training staff requesting permission to approach collegiate athletes involved in the selected spring semester sports. This initial contact was made by a cover letter (Appendix C) and was later followed up with personal researcher contact. Permission was granted in all instances. The experimenter met with all athletes through attendance at their respective practice sessions during the first week of data collection. Athletes were briefed as to the nature of the study, being told that the study was designed to examine the relationship between emotional response to injury and personality type. It was explained to all athletes that participation was voluntary and that all information would be confidential. All of the athletes approached agreed to participate. Athletes were then asked to sign a consent form, which permitted a release of medical information (APPENDIX D) and were asked to complete the Paratelic Dominance Scale and the Profile of Mood States. The questionnaires each took approximately five minutes to complete.

The health and injury status of subjects in the study was tracked through bi-weekly visits to the athletic

training room and consultation with the athletic training staff over a period of six weeks. Athletic trainers were given a form to complete on a daily basis (Appendix E) detailing the injury status of all collegiate athletes in their particular sport. Athletic trainers recorded the date, nature, and severity of injury and the approximate rehabilitation period. Injuries were categorized in terms of severity on a scale of one (mild) through three (severe). Criteria for this varied according to type of injury, but in general injuries of severity type I were characterized by mild pain, discoloration, swelling and approximately one to five days away from activity. Injuries of type II were characterized by moderate pain, discoloration and swelling, with a two to three weeks away from activity. Finally, injuries of type III were characterized by severe pain, discoloration and swelling and a prolonged time (in excess of three weeks) away from activity. This form of classification is based upon the National Collegiate Athletic Association (NCAA) classification system (NCAA, 1996).

Athletes who incurred an injury during the six-week data collection period were again approached by the researcher and asked to complete a second Profile of Mood States. All athletes completed a second POMS within one

week of their injury occurrence. This follow up was invariably conducted in the athletic training room, with the exception of twelve athletes who were still attending practice sessions, who were re-tested at these sessions.

A total mood disturbance score was obtained from both administrations of the POMS. In order to eliminate the effects of pre-injury mood states, pre-injury scores were subtracted from post-injury scores to give total mood disturbance difference scores, which were used in the final analysis.

Data Analysis

Hypothesis 1: Athletes will have significantly elevated total mood disturbance following injury, as measured by POMS difference scores. This hypothesis was tested using a dependent t-test.

Hypothesis 2: Paratelic dominant individuals will display a greater incidence of negative mood disturbance than telic dominant individuals. This hypothesis was tested using an independent t-test, with personality orientation (telic or paratelic dominant) as the independent variable and change in total mood disturbance (POMS difference score) as the dependent variable. High scorers versus low scorers on the PDS were identified as representing paratelic-dominant and telic-dominant

individuals respectively. Subjects scoring above the median score (12.5) on the PDS were categorized as paratelic, subjects scoring below or equal to this median were categorized as telic. This method of categorization is consistent with previous studies that have utilized the PDS scale to examine paratelic dominance and the appraisal of stressful events in undergraduate students (Lafreniere, 1997).

It was decided that total mood disturbance (TMD) scores from the POMS would be used in the analysis because they represent a global measure of change in mood state. However, an a priori decision was made to examine specific POMS subscales most related to paratelic tension stress in the event that no significant differences were found using total mood disturbance disturbance difference scores. Based upon the previous literature, tension and depression scores were determined most relevant and a MANOVA was conducted using mode dominance as the independent variable and POMS tension and depression difference scores as the dependent variables. Significance levels of $P < .05$ were adopted for all analyses.

Chapter V

Discussion

The purpose of this study was to examine athletes' emotional response to injury, and to investigate the relationship between the extent of post-injury mood disturbance and personality orientation, as defined by reversal theory.

It was found that athletes in this study displayed significantly increased levels of total mood disturbance (TMD), as measured by the POMS, following injury. This finding supports previous research pertaining to psychological aspects of athletic injury, which has reported greater depression and anxiety (Leddy, Lambert & Ogles, 1994; Smith, Scott, O'Fallon & Young, 1993), decreased vigor (Smith, Scott & Wiese, 1990) and increased total mood disturbance (Macchi & Crossman, 1996; McDonald & Hardy, 1990; Pearson & Jones, 1992; Quackenbush & Crossman, 1994) in injured athletes. This finding carries important implications for the treatment of, and rehabilitation from, athletic injuries. Specifically, it highlights the need for trainers and coaches to address psychological, as well as physiological, aspects of athletic injury. Smith, Scott & Wiese (1990) suggest an assessment and evaluation

procedure that addresses the nature of the injury, the athlete's interpretation of the injury, the emotional response of the athlete to injury and finally the behavioral consequences. This model encompasses the major psychological sub-components of the recovery process, (cognitive, emotional and behavioral) as highlighted by Wiese-Bjornstal et al. (1998).

Athletic trainers and sports medicine professionals provide the first line of intervention when psychological adjustment problems occur (Heil, 1993). It is therefore of critical importance for such professionals to develop an understanding of psychological aspects of injury. Hardy & Crace (1993) suggest that athletic trainers and physical therapists can help injured athletes by providing emotional and informational support throughout the rehabilitation process. In addition, Henderson & Carroll (1993) advise trainers involved in the recovery process to expect and encourage some emotional reaction to injury as a normal response, and to understand that in treating the athlete he or she is treating the whole person, not only the physical aspect of the injury. Knowledge of an athlete's personality type can be useful in treating the athlete as well as the injury itself. If sports medicine professionals are aware of an athlete's personality

orientation, within reversal theory, they may be able to utilize this information in order to anticipate the potential severity of emotional response to injury and the likelihood that an athlete will adhere to a rehabilitation regimen. Specifically, if an athlete is telic dominant then one would expect this athlete to display a problem focused and goal directed orientation toward rehabilitation. Thus, this athlete is likely to benefit from a structured program of rehabilitation, with clearly defined short and long term goals. In contrast, an athlete who is paratelic dominant is unlikely to adhere to such a structured rehabilitation program. A rehabilitation program that challenges the athlete and actively involves the athlete in his or her recovery is likely to be more appealing to a paratelic dominant athlete, resulting in improved compliance to the rehabilitation program. In this respect, an individualized rehabilitation regimen that incorporates specific personality factors related to metamotivational orientation will be superior to a standardized program that may not address the specific concerns of each athlete.

In this study the overall response of athletes to injury was one of increased mood disturbance. However, an important point to note is that there was a considerable

amount of individual variation in the responses, with reported POMS difference scores ranging from -53 to 100. Despite the observed significant increase in TMD not all of the athletes in the study showed marked increases in mood disturbance following injury, and five athletes actually displayed a decrease in negative mood. This individual variation is consistent with the findings of Smith, Scott and Weiss (1990) who noted that athletes differ in their reaction to injury, and that despite generalizations of an "injured athletes response" (Pederson, 1986; Weiss & Troxel, 1986) not all athletes experience an observable or measurable emotional disturbance following injury. This may be due to a number of factors, such as the nature of the injury, previous experience the athlete has had in successfully dealing with injury or the athlete's mental coping abilities. Whatever the reason, this observed variation further reinforces the need for injured athletes to be evaluated on an individual basis. Smith, Scott & Wiese (1990) highlight the importance of developing tailored rehabilitation programs for each athlete, based upon individual evaluation, in order to avoid making erroneous assumptions of mood disturbance.

Another tenuous assumption is the supposition that negative emotions are necessarily detrimental to injury

rehabilitation. While an elevated TMD score is assumed to be reflective of a dysfunctional coping response toward injury, it is possible that these negative emotions can actually motivate an athlete to adhere to a rehabilitation program. Morray (1997) found that competitive athletes experience greater mood disturbance than recreational athletes, but also that competitive athletes tend to recover faster than recreational athletes. Thus it was concluded that the expedited recovery experienced by competitive athletes may have been at least partially facilitated by negative emotions. This area has yet to be thoroughly examined, but for now it is suggested that researchers avoid the untested assumption that all negative emotion is necessarily detrimental to recovery (Wiese-Bjornstal et al., 1998).

The second hypothesis in this study tested the prediction that paratelic dominant athletes would display greater levels of TMD following injury than telic dominant athletes using an independent t-test. This test did not yield significant results ($t=.435$), indicating that for this sample a relationship did not exist between paratelic dominance and greater negative emotional response to injury. An examination of the POMS difference scores for telic dominant and paratelic dominant athletes showed means

of 24.5 and 31.5 respectively, indicating a difference between the different personality orientations in the direction predicted, (i.e. paratelic dominant individuals display greater levels of TMD).

There are several possible methodological reasons why the hypothesis that paratelic individuals would respond to athletic injury with greater mood disturbance was not empirically supported. First, the overall sample size (N=25) was relatively small, this may have contributed to the non-significant result of this hypothesis. Second, the standard deviations for POMS difference scores were 40.42 for telic dominant athletes and 36.09 for paratelic dominant athletes. This indicates a large amount of variability in the scores, which could have accounted for non-significant results. Third, using a median split method enabled use of all twenty-five subjects in this analysis. However, several subjects' PDS scores were within one numerical value of the median split, indicating that variability between subject groups was not large enough to detect significant and meaningful differences. Fourth, half of the subjects (N=12) within this study were football players and were participating in spring football. It may have been the case that since these players were participating, yet were not in their competitive season,

that any injury incurred was not perceived in the same manner as it may have been in the fall season. Finally, even though athletes were informed that their responses would remain anonymous, it is possible that athletes may have responded in a favorable manner under the expectation that coaching staff may have evaluated players on the post-injury POMS measures. This is a common research problem within the athletic injury literature (Rotella & Heyman, 1986).

A number of additional factors may also have acted as confounds to this study. The Wiese-Bjornstal et al. (1998) integrated model of response to sport injury (Figure 1) depicts how a number of personal and situational factors interact so as to regulate the psychological response to injury. Such factors include individual differences, issues specific to the sport and the injury concerned, social factors and environmental factors. This study provided an examination of the role of personality type in moderating psychological response to injury; personality type is one of thirty-seven factors listed by Wiese-Bjornstal et al. (1998) that are hypothesized to regulate the athletic injury experience. The fact that so many factors can and do influence psychological response to injury makes it difficult to examine any one factor in

isolation. Consequently, while efforts were taken to control for extraneous variables such as time in season, age of athletes and level of competition, it is quite probable that other influential factors were not controlled for, and these factors may have had a direct impact upon the observed pre- and post-injury TMD scores. One such factor that has been documented in a number of empirical studies is injury severity.

This study included all injuries, from mild to severe, within the same analysis. Previous research has shown that injured athletes experience emotional response that is generally proportionate to the severity of their injury (Smith et al., 1993), with a more severe injury being associated with higher levels of post-injury TMD. In this current study differences in TMD scores due to injury severity may have masked potential differences between athletes of different metamotivational orientation. An analysis of results that controlled for injury severity may have overcome this problem. Also, had the sample size been larger, the analysis could have included only those athletes with injuries of severity type two or three, as severity one athletes only spent a minimal time away from practice or competition. Since time away from activity was the major assumption behind the hypothesis that paratelic

dominant athletes would display a more extreme emotional response to injury, the results of the study may have been affected by including injuries of type severity one, where the athlete spent only minimal time in an activity restricted, low arousal situation.

Other confounding and complicating variables include injury onset (chronic or acute), whether the athlete is a team or individual player, the attitude of the coach toward injured athletes, previous injury experience, timing of the injury, social and family support, and the degree of negative stress in an athlete's life (Flint, 1998). Due to the complex way in which such factors interact in determining the response to athletic injury it is important for future researchers to adopt a more multidimensional approach toward the study of sports injury and rehabilitation, rather than trying to study one or more of these factors in isolation.

Future research involving the application of reversal theory to the psychology of athletic injury might include an analysis of all four pairs of metamotivational states, rather than centering solely upon the telic-paratelic pair. The current study focused exclusively upon telic and paratelic personality orientation as this was deemed to be most appropriate to the nature of the investigation, due to

an emphasis upon the experience of arousal. However, the other three pairs of states may also be relevant to the athletic injury area. Whether an athlete possesses a negativistic or conformist orientation may help health professionals to predict likelihood of adherence to a rehabilitation program. Further, an autic orientation would indicate a tendency for an athlete to be concerned with the impact of injury upon oneself, while an alloic orientation would more likely be associated with a concern for others, such as team-mates or parents. Finally, mastery orientation would typically be characterized by a desire for control (of the rehabilitation process), whereas sympathy orientation would be characterized by a willingness to co-operate (with rehabilitation). Examining all eight metamotivational states, and the interaction among them, may give a more complex, yet complete picture of the experience of athletic injury from a reversal theory standpoint. Further, repeated measurement of post-injury mood disturbance throughout the entire rehabilitation process may provide a comprehensive picture of how metamotivational orientation modifies response to injury over time.

An additional finding of this study was a significant difference ($p < .05$) in TMD scores between male and female

injured athletes. Specifically, female athletes displayed significantly greater TMD than their male counterparts. Within the competitive anxiety literature (Martens, Vealey, & Burton, 1990) it is a common finding that female athletes respond to stressors with greater anxiety and less self-confidence than male athletes. Since athletic injury is commonly viewed as a stressor this current finding supports this notion. Literature specifically related to pain and injury has revealed mixed results. Significant gender differences in the experience of pain (Anshel et al., 1997) and in coping with pain / injury (Anshel et al., 1998) have been reported, and significant gender differences at various stages of the injury recovery process have been found (Quackenbush & Crossman, 1994). However, Smith et al. (1990) found no significant difference between the emotional response of male and female athletes to injury and LaMott (1994) reported no significant gender differences in the emotional response to ACL reconstruction surgery.

The significant gender differences found in this study may be explained from a sociological perspective. Messner (1992) describes how the internal structure of masculine identity results in males becoming alienated from their feelings and thus prone to using their bodies

instrumentally in the world of sport. In traditional "masculine" sports, such as football, wrestling and rugby, inflicting and taking pain is an integral part of the activity (Sabo, 1989; Sabo & Panepinto, 1990). Players who take pain and do so without any overt complaints are seen as "a man's man" (Schacht, 1996a) and gain respect from others. Although, Curry (1991) notes that this masculine status can be quickly lost if a player becomes injured and can no longer play. Coakley (1994) explains such behavior as reflecting

"unquestioned and unqualified acceptance of and conformity to the value system embodied in what might be called the 'sport ethic'."

The sport ethic (Hughes & Coakley, 1991) refers to what many athletes have come to use as the dominant criteria for defining what it really means, in their minds, to be an athlete. At the core of this ethic is the idea that athletes learn to define sacrifice, risk, pain and injury as the price one must pay to be a true athlete in competitive sports (Wiese-Bjornstal et al., 1998). In examining psychological responses to sports injury it is important that researchers consider this sociological culture of sport. Athletes do not exist in a vacuum, and so one must be conscious of the fact that each athlete is a product of his or her heredity, environment and learning

(Henderson & Carroll, 1993). Consequently, each athlete's response to injury will likely be influenced by a number of psycho-social factors that need to be taken into consideration in both empirical investigation and applied interventions within psychological rehabilitation from athletic injury.

This study has examined the psychological impact of injury upon athletes and has concluded that, in general, athletes tend to respond to injury with significantly elevated levels of total mood disturbance. While it is not always the case that such alterations in mood are detrimental to the recovery process, it is certainly a factor that sports medicine professionals and team coaches need to be aware of when dealing with injured athletes. Prompt analysis of post-injury mood states will enable medical professionals to identify those athletes who are not coping well with injury, and to take appropriate steps toward referring the athlete for further psychological counseling. Often, knowledge of an athlete's personality type may help identify those particular athletes who are predisposed toward experiencing a greater negative emotional response to injury than others.

Although no significant relationship was identified between emotional response to injury and reversal theory

personality orientation in this study, this is still a promising area for future research. It is hoped that knowledge of the psychology of athletic injury will continue to grow, through development of a base of theory, research and practice, in order to afford athletes the best possible chance for a short and successful rehabilitation from athletic injury and a safe return to sport.

REFERENCES

Ali, A., & Toner, B. (1996). Gender differences in depressive response: The role of social support. Sex Roles, 35, 281-293.

Andersen, M.B., & Williams, J.M. (1988). A model of stress and athletic injury: Prediction and prevention. Journal of Sport and Exercise Psychology, 10, 294-306.

Anderson, G., & Brown, R.I.F. (1987). Some applications of reversal theory to the explanation of gambling and gambling addictions. Journal of Gambling Behaviour, 3, 179-189.

Anshel, M.H., Porter, A. & Quek, J.J. (1998). Coping with acute stress in sport as a function of gender: An exploratory study. Journal of Sport Behavior, 21, 363-376.

Anshel, M.H., Williams, L.R.T., & Hodge, K. (1997). Cross-cultural and gender differences on coping style in sport. International Journal of Sport Psychology, 28, 141-156.

Apter, M.J. (1976). Some data inconsistent with the optimal arousal theory of motivation. Perceptual and Motor Skills, 43, 1209-1210.

Apter, M.J. (1979). Human action and the theory of psychological reversals. In G. Underwood & R. Stevens

(Eds.) Aspects of Consciousness: Vol. 1. Psychological Issues (pp. 45-65) London: Academic Press.

Apter, M.J. (1982). The experience of motivation: The theory of psychological reversals. London: Academic Press.

Apter, M.J. (1989). Reversal theory: Motivation, emotion and personality. London: Routledge.

Apter, M.J. (1990). Sport and mental health: A new psychological perspective. In G.P.H. Hermans & W.L. Mosterd (Eds.) Sports, Medicine and Health (Excerpta Medica International Congress Series, pp. 47-56). Amsterdam: Elsevier.

Apter, M.J. (1992). The Dangerous Edge: The Psychology of Excitement. New York: The Free Press

Apter, M.J., & Apter-Deselles, M.L. (1993). The personality of the patient: going beyond the trait concept. Patient Education and Counseling, 22, 107-114.

Arednt, E., & Dick, R. (1995). Knee injury patterns among men and women in collegiate basketball and soccer: NCAA data and review of literature. The American Journal of Sports Medicine, 23(6), 694-702.

Booth, N.D. (1990). The relationship between height and self-esteem and the mediating effect of self-consciousness. Journal of Social Psychology, 130, 609-617.

Bowers, A.J. (1985). Reversals, delinquency and disruption. British Journal of Clinical Psychology, 25, 303-304.

Brewer, B.W., Linder, D.E., & Phelps, C.M. (1995). Situational correlates of emotional adjustment to athletic injury. Clinical Journal of Sports Medicine, 5, 241-245.

Brewer, B.W., Petitpas, A.J., VanRaalte, J.L., Sklar, J.H., & Ditmar, T.D. (1995). Prevalence of psychological distress among patients at a physical therapy clinic specializing in sports medicine. Sports Medicine, Training and Rehabilitation, 6, 139-145.

Brewer, B.W., & Petrie, T.A. (Spring, 1995). A comparison between injured and non-injured football players on selected psychosocial variables. The Academic Athletic Journal, 11-17.

Chan, C.S., & Grossman, H.Y. (1988). Psychological effects of running loss on consistent runners. Perceptual Motor Skills, 66, 875-883.

Christie, M.D. & Schultz, K.S. (1999). Gender differences on coping with job stress and organizational outcomes. Work and Stress, 12, 351-361.

Coakley, J. (1994). Sport in Society: Issues and Controversies. London: Mosby.

Connelly, S.L. (1991). Injury and self-esteem: a test of Sonestrom and Morgan's model [masters thesis]. South Dakota State University: Vermilion.

Cook, M.R., & Gerkovich, M.M. (1993). The development of the paratelic dominance scale. In J. Kerr, S. Murgatroyd & M.J. Apter (Eds.), Advances in Reversal Theory, (pp. 177-188). Amsterdam: Swets & Zeitlinger.

Cook, M.R., Gerkovich, M.M., O'Connell, K.A., & Keele, R. (1999). Reliability and Validity of the Paratelic Dominance Scale. Manuscript submitted for publication.

Cox, R.H. (1998). Sport Psychology: Concepts and Applications. Boston, MA: McGraw-Hill.

Curry, T.J. (1991). Fraternal bonding in the locker room: A profeminist analysis of talk about competition and women. Sociology of Sport Journal, 8(2), 119-135.

Danish, S. (1986). Psychological aspects in the care and treatment of athletic injuries. In P.F. Vinger & E.F. Hoener (eds.), Sports Injuries: The Unthwarled Epidemic (pp. 345-353). Boston: PSG.

Flint, F.A. (1998). Integrating sport psychology and sports medicine in research: The dilemmas. Journal of Applied Sport Psychology, 10, 83-102.

Frey, K.P. (1997). About reversal theory. In S. Svebak & M.J. Apter (Eds.) Stress and Health: A Reversal

Theory Perspective (pp3-21) Washington, DC: Taylor & Francis.

Hardy, C.J., & Crace, R.K. (1993). The dimensions of social support when dealing with sport injuries. In D. Pargman (Ed.) Psychological Bases of Sport Injuries (pp 121-144). Morgantown, WV: Fitness Information Technologies Inc.

Heil, J. (1993). Psychology of Sport Injury. Champaign, IL: Human Kinetics.

Henderson, J., & Carroll, W. (1993). The athletic trainer's role in preventing sport injury and rehabilitating injured athletes: A psychological perspective. In D. Pargman (Ed.) Psychological Bases of Sport Injuries (pp.15-31). Morgantown, WV: Fitness Information Technologies Inc.

Hughes, R., & Coakley, J. (1991). Positive deviance among athletes: The implications of overconformity to the sport ethic. Sociology of Sport Journal, 8(4), 307-325.

Hyypae, M.T., Alaranta, H., Hurme, M., Nykvist, F., & Lahtel, K. (1998). Stress Medicine, 4, 117-121.

Gordon, S. (1986). Sport psychology and the injured athlete: A cognitive behavioral approach to injury response and injury rehabilitation. Science Periodical on Research and Technology in Sport, 1-10.

Grove, R.J. (1993) Personality and injury rehabilitation among sport performers, In D. Pargman (Ed), Psychological bases of sport injuries (pp. 99-120).

Morgantown, W V: Fitness Information Technology.

Grove, R.J., Stewart, R.M.L., & Gordon, S. (1990, April). Emotional reactions of athletes to knee rehabilitation. Paper presented at the annual meeting of the Australian Sports Medicine Federation, Alice Springs.

Hebb, D.O. (1955). Drives and the central nervous system. Psychological Review, 62, 243-254.

Kane, B. (1984). Trainer counseling to avoid three face saving maneuvers. Athletic Trainer, 19, 171-174.

Kerr, J.H. (1985a). A new perspective for sport psychology. In M.J. Apter, D Fontana & S. Murgatroyd (Eds.), Reversal theory: Applications and developments. Cardiff: University of Cardiff Press.

Kerr, J.H. (1985b). The experience of arousal: A new basis for studying arousal effects in sport. Journal of Sport Sciences, 3, 169-179.

Kerr, J.H. (1987). Structural phenomenology and performance. Journal of Human Movement Studies, 13, 211-229.

Kerr, J.H, (1988). Soccer hooliganism and the search for excitement. In M.J. Apter, J.H. Kerr & M.P. Cowles

(Eds.), Progress in Reversal Theory (pp. 223-230).

Amsterdam: Elsevier.

Kerr, J.H., (1990). Stress and Sport: Reversal Theory. In J.G. Jones & L. Hardy (Eds.), Stress and Performance in Sport. Chichester, UK: J. Wiley & Sons.

Kerr, J.H. (1997). Motivation and Emotion in Sport: Reversal Theory. Surrey, UK: Psychology Press

Kerr, J.H., & Cox, T. (1988). Psychological preparation for competitive squash. Journal of Human movement studies, 14, 205-218.

Kerr, J.H., & Cox, T. (1990). Cognition and mood in relation to the performance of a squash task. Acta Psychologica, 73(1), 103-114.

Kerr, J.H., & Pos, E. (1994). Psychological mood in competitive gymnastics: An explanatory field study. Journal of Human Movement Studies, 26(4), 175-185.

Kerr, J.H., Murgatroyd, S., & Apter, M.J. (Eds.), (1993). Advances in Reversal Theory. Amsterdam: Swets & Zeitlinger.

Kraus, J.F., & Conroy, C. (1984). Mortality and morbidity from injuries in sports and recreation. Annual Review of Public Health, 5, 162-192

Kuebler-Ross, E. (1969). On Death and Dying. New York: Macmillan

Lafreniere, K.D. (1997). Paratelic dominance and the appraisal of stressful events. In S. Svebak & M.J. Apter (Eds.) Stress and Health: A Reversal Theory Perspective (pp. 35-45) Washington, DC: Taylor & Francis.

LaMott, E.E. (1994). The anterior cruciate ligament injured athlete: The psychological process. Unpublished doctoral dissertation, University of Minnesota, Minneapolis.

Leddy, M.H., Lambert, M.J., & Ogles, B.M. (1994) Psychological consequences of athletic injury among high level competition. Research Quarterly for Exercise and Sport, 65, 349-354.

Lorr, M., & McNair, D.M. (1984). Manual for the Profile of Mood States - bipolar form. San Diego: Educational and Industrial Testing Service.

Macchi, R. & Crossman, J. (1996). After the fall: Reflections of injured ballet dancers. Journal of Sport Behavior, 19, 221-235.

Males, J.R., & Kerr., J.H. (1996). Stress, emotion and performance in elite slalom canoeists. The Sport Psychologist, 10, 17-36.

Martens, R., Vealey, R.S., & Burton, D. (1990). Competitive Anxiety in Sport. Champaign, IL: Human Kinetics.

Martin, R.A., Kupier, N.A., & Olinger, L.J. (1988). Telic versus paratelic dominance as a moderator of stress. In M.J. Apter, M.P. Kerr & M.P. Cowles (Eds.), Progress in reversal theory. North Holland: Elsevier Science Publishers B.V.

May, J.R., Veach, T.L., Reed, M.W., & Griffey, M.S. (1985). A psychological study of health, injury and performance in athletes on the US Alpine Ski Team. Physician and Sports Medicine, 7, 57-70.

McDonald, S.A., & Hardy, C.J. (1990) Affective response patterns of the injured athlete: An exploratory analysis. The Sport Psychologist, 4, 261-274.

McGowan, R.W., Pierce, E.F., Williams, M. et al. (1994). Athletic injury and self-diminution. Journal of Sports Medicine and Physical Fitness, 34, 299-304.

McNair, D.M., Lorr, M., & Droppleman, L.F. (1971). Manual: Profile of mood states. San Diego, CA: Educational and industrial testing service.

Messner, M.A. (1992). Power at Play. Boston, MA: Beacon Press.

Morrey, M.A., (1997). A longitudinal examination of emotional response, cognitive coping, and physical recovery among athletes undergoing anterior cruciate ligament

reconstructive surgery. Unpublished doctoral dissertation, University of Minnesota, Minneapolis.

Murgatroyd, S. (1985). The nature of telic dominance. In: M.J. Apter, D. Fontana & S. Murgatroyd (Eds.), Reversal Theory: Applications and Developments (pp. 1-19). Cardiff: University of Cardiff Press.

Murgatroyd, S., Rushton, C., Apter, M.J., & Ray, C. (1978). The development of the telic-dominance scale. Journal of Personality Assessment, 42, 519-528.

Murray, D.G. (1992). High school injury surveillance systems. Proceedings from Conference on Sports Injuries in Youth: Surveillance Strategies, Apr 8-9, 1991. Bethesda (MD): National Institutes of Health, Nov, 39-47.

National Collegiate Athletic Association Injury Surveillance System. (1996). Overland Park, KS: National Collegiate Athletic Association.

Pargman, D. (Ed.) (1993). Psychological Bases of Sport Injuries. Morgantown, WV: Fitness Information Technology Inc.

Pearson, L., & Jones, G. (1992) Emotional effects of sport injuries: Implications for physiotherapists. Physiotherapy, 78, 762-770.

Pederson, P. (1986). The grief response and injury: a special challenge for athletes and athletic trainers. Athletic Training, 21, 312-314.

Quackenbush, N., & Crossman, J. (1994). Injured athletes: A study of emotional responses. Journal of Sport Behavior, 17(3), 178-187.

Rotella, R.S., & Heyman, S.R. (1986). Stress, injury and the psychological rehabilitation of athletes. In J. M. Williams (Ed.). Applied Sport Psychology: Personal Growth to Peak Performance (pp. 343-364). Palo Alto, CA: Mayfield.

Rosenberg, M. (1968). Society and the adolescent self-image. Princeton, NJ: Princeton University Press.

Sabo, D. (1989). Pigskin, patriarchy and pain. In M.S. Kimmel & M.A. Messner (Eds.) Men's Lives (pp. 184-186). New York: Macmillan.

Sabo, D., & Panepinto, J. (1990). Football ritual and the social reproduction of masculinity. In M.A. Messner & D.F. Sabo (Eds.) Sport, Men and the Gender Order: Critical Feminist Perspectives (pp. 115-126). Champaign, IL: Human Kinetics.

Samples, P. (1987). Mind over muscle: returning the injured athlete to play. Physician and Sports Medicine, 15, 172-180.

Schaffer, S.M., (1991). Attributions and self-efficacy as predictors of rehabilitative success.

Unpublished master's thesis, University of Illinois, Champaign-Urbana.

Schacht, S.P. (1996a). Misogyny on and off the pitch: The gendered world of male rugby players. Gender & Society, 10, 550-565.

Smith, A.M. (1996). Psychological impact of athletic injuries. Sports Medicine, 22, 391-405.

Smith, A.M., & Milliner, E.K. (1994). Injured athletes and the risk of suicide. Journal of Athletic Training, 29, 337-341.

Smith, A.M., Scott, S.G., O'Fallon, W.M., & Young, M.L. (1990). The emotional response of athletes to injury. Mayo Clinical Proceedings, 65, 38-50.

Smith, A.M., Scott, S.G., & Weiss, D.M. (1990). The psychological effects of sports injuries: coping. Sports Medicine, 9, 352-369.

Smith, A.M., Stuart, M.J., Wiese-Bjornstal, D.M. et al. (1993). Competitive athletes: pre and post injury mood state and self-esteem. Mayo Clinical Proceedings, 68, 939-949.

Smith, K.C.P., & Apter, M.J. (1975). A Theory of Psychological Reversals. Wilts: Picton Publishing.

Stone, K.R. (1997). Foreword. In J. Taylor & S. Taylor, Psychological Approaches to Sport Injury Rehabilitation, (pp. xi-xii). Maryland: Aspen Publishers Inc.

Taylor, J., & Taylor, S. (1997). Psychological Approaches to Sports Injury Rehabilitation. Maryland: Aspen Publishers Inc.

Thomas, C.E., & Rintala, J.A. (1989). Injury as alienation in sport. Journal of Philosophy of Sport, 16, 44-58.

Uitenbroek, D. (1996). Sports, exercise and other causes of injuries: Results of a population survey. Research Quarterly for Exercise and Sport, 67, 380-385.

Weiss, M.R., & Troxel, R.K. (1986). Psychology of the injured athlete. Athletic Training, 21, 104-109, 154.

Wiese-Bjornstal, D.M., & Smith, A.M. (1993) Counseling strategies for enhanced recovery of injured athletes within a team approach. In D.Pargman (Ed), Psychological bases of sport injuries (pp.149-182). Morgantown, WV: Fitness Information Technology.

Wiese-Bjornstal, D.M., Smith, A.M., & LaMott, E.E. (1995). A model of psychological response to athletic injury and rehabilitation. Athletic Training; Sports Healthcare Perspectives, 1, 16-30.

Wiese-Bjornstal, D.M., Smith, A.M., Schaffer, S.M., & Morray, M.A. (1998). An integrated model of response to sport injury: psychological and sociological dynamics. Journal of Applied Sport Psychology, 10, 46-69.

Wilkinson, T. (1998). Pop, crackle and snap. Treatment and recovery from injuries to the anterior cruciate ligament of the knee. Women's sport and fitness, 20(3), 68-70.

Williams, J.M., & Andersen, M.B. (1986, June). The relationship between psychological factors and injury occurrence. Paper presented at the annual meeting of the North American Society for Psychology of Sport and Physical Activity. Scottsdale, AZ.

Williams, J.M., & Andersen, M.B. (1998). Psychosocial antecedents of sport injury: Review and critique of the stress and injury model. Journal of Applied Sport Psychology, 10, 5-25.

Wilson, G.V., & Phillips, M. (1995, July). A reversal theory in competitive sport. Paper presented at the Seventh International Conference on Reversal Theory, Melbourne, Australia.

APPENDIX A - PROFILE OF MOOD STATES

NAME _____ DATE _____
 SEX: Male (M) Female (F)

Below is a list of words that describe feelings people have. Please read each one carefully. Then fill in ONE circle under the answer to the right which best describes how you generally feel, day in and day out.

The numbers refer to these phrases.

0 = Not at all
 1 = A little
 2 = Moderately
 3 = Quite a bit
 4 = Extremely

IDENTIFICATION

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9

Col (C)	O.P. (C)		NOT AT ALL A LITTLE MODERATELY QUITE A BIT EXTREMELY		NOT AT ALL A LITTLE MODERATELY QUITE A BIT EXTREMELY
1. Friendly	0 1 2 3 4	21. Hopeless	0 1 2 3 4	45. Desperate	0 1 2 3 4
2. Tense	0 1 2 3 4	22. Relaxed	0 1 2 3 4	46. Sluggish	0 1 2 3 4
3. Angry	0 1 2 3 4	23. Unworthy	0 1 2 3 4	47. Rebellious	0 1 2 3 4
4. Worn out	0 1 2 3 4	24. Spiteful	0 1 2 3 4	48. Helpless	0 1 2 3 4
5. Unhappy	0 1 2 3 4	25. Sympathetic	0 1 2 3 4	49. Weary	0 1 2 3 4
6. Clear-headed	0 1 2 3 4	26. Uneasy	0 1 2 3 4	50. Bewildered	0 1 2 3 4
7. Lively	0 1 2 3 4	27. Restless	0 1 2 3 4	51. Alert	0 1 2 3 4
8. Confused	0 1 2 3 4	28. Unable to concentrate	0 1 2 3 4	52. Deceived	0 1 2 3 4
9. Sorry for things done	0 1 2 3 4	29. Fatigued	0 1 2 3 4	53. Furious	0 1 2 3 4
10. Shaky	0 1 2 3 4	30. Helpful	0 1 2 3 4	54. Efficient	0 1 2 3 4
11. Listless	0 1 2 3 4	31. Annoyed	0 1 2 3 4	55. Trusting	0 1 2 3 4
12. Peeved	0 1 2 3 4	32. Discouraged	0 1 2 3 4	56. Full of pep	0 1 2 3 4
13. Considerate	0 1 2 3 4	33. Resentful	0 1 2 3 4	57. Bad-tempered	0 1 2 3 4
14. Sad	0 1 2 3 4	34. Nervous	0 1 2 3 4	58. Worthless	0 1 2 3 4
15. Active	0 1 2 3 4	35. Lonely	0 1 2 3 4	59. Forgetful	0 1 2 3 4
16. On edge	0 1 2 3 4	36. Miserable	0 1 2 3 4	60. Carefree	0 1 2 3 4
17. Grouchy	0 1 2 3 4	37. Muddled	0 1 2 3 4	61. Terrified	0 1 2 3 4
18. Blue	0 1 2 3 4	38. Cheerful	0 1 2 3 4	62. Guilty	0 1 2 3 4
19. Energetic	0 1 2 3 4	39. Bitter	0 1 2 3 4	63. Vigorous	0 1 2 3 4
20. Pnicky	0 1 2 3 4	40. Exhausted	0 1 2 3 4	64. Uncertain about things	0 1 2 3 4
		41. Anxious	0 1 2 3 4	65. Bused	0 1 2 3 4
		42. Ready to fight	0 1 2 3 4		
		43. Good natured	0 1 2 3 4		
		44. Gloomy	0 1 2 3 4		

MAKE SURE YOU HAVE ANSWERED EVERY ITEM.

APPENDIX B - PARATELIC DOMINANCE SCALE

Name _____

Age _____

Male _____ Female _____

PERSONAL STYLE QUESTIONNAIRE

Here are some statements that describe different characteristics of people. Please read each statement carefully and decide whether that statement is TRUE or FALSE as it applies to you. Then indicate your decision by putting a check mark next to "True" or "False".

1. TRUE _____ FALSE _____ I usually make decisions based on the way I feel at the time
2. TRUE _____ FALSE _____ Usually, my leisure activities have no specific purpose
3. TRUE _____ FALSE _____ I have long term life ambitions
4. TRUE _____ FALSE _____ I regularly think of the future
5. TRUE _____ FALSE _____ If I have extra time, I prefer to spend it accomplishing something important
6. TRUE _____ FALSE _____ I often take risks
7. TRUE _____ FALSE _____ I think we should let the future look after itself
8. TRUE _____ FALSE _____ I like being in predictable situations
9. TRUE _____ FALSE _____ I usually do things just for fun
10. TRUE _____ FALSE _____ I generally do not take anything too seriously
11. TRUE _____ FALSE _____ I am an adventurous sort of person

12. TRUE ____ FALSE ____ I usually enjoy thinking of my long term goals
13. TRUE ____ FALSE ____ I almost never like to take chances
14. TRUE ____ FALSE ____ I usually like to have peace and quiet
15. TRUE ____ FALSE ____ I am a serious minded person
16. TRUE ____ FALSE ____ I usually make decisions based on my long term goals
17. TRUE ____ FALSE ____ I often do things just for excitement
18. TRUE ____ FALSE ____ I like to take each day as it comes
19. TRUE ____ FALSE ____ I usually take life seriously
20. TRUE ____ FALSE ____ I think it is important to plan for the future
21. TRUE ____ FALSE ____ I prefer leisure activities that have a serious purpose
22. TRUE ____ FALSE ____ I seldom make long term plans
23. TRUE ____ FALSE ____ I prefer my life to be predictable and orderly
24. TRUE ____ FALSE ____ I prefer a peaceful, quiet environment
25. TRUE ____ FALSE ____ I make decisions based upon what I expect my future needs to be
26. TRUE ____ FALSE ____ In my free time, I prefer activities with no serious purpose
27. TRUE ____ FALSE ____ I would rather think about the present than the future
28. TRUE ____ FALSE ____ I prefer to go through life safely
29. TRUE ____ FALSE ____ I tend to be impulsive
30. TRUE ____ FALSE ____ I prefer to think in the long term

APPENDIX C - COVER LETTERS

1530 1st Street, #2
Charleston, IL. 61920
February 17th 1999

Coach

I am a graduate student in the Department of Physical Education. I am writing to request permission to approach your athletes to serve as participants for my Masters thesis. My thesis will be examining athletes' emotional response to injury, and will be attempting to establish whether a relationship exists between an athlete's post-injury mood state and his/her personality orientation.

The psychology of athletic injury is an important area of relevance for coaches, trainers and athletes alike. It is hoped that by increasing knowledge of emotional response to injury we will be able to anticipate and deal with an athlete's thoughts, emotions and behaviors during rehabilitation. This should hopefully improve compliance rates to such programs while simultaneously improving an athlete's psychological adjustment to the potential trauma of an athletic injury. Ultimately it is hoped that such endeavors will enhance the likelihood of injured athletes making a rapid and successful return to sport.

I would like all athletes to complete two inventories. The first inventory, the Profile of Mood States, will provide a measure of total mood disturbance and will take approximately 3-6 minutes to complete. The second inventory, the Paratelic Dominance Scale, will provide a measure of an athlete's personality orientation and will take approximately 2-5 minutes to complete. Following this initial collection any athlete who incurs an athletic injury during the collection period March 1st through April 12th will be asked to complete a second Profile of Mood States inventory. A non-injured athlete will also be asked to complete a second Profile of Mood States to control for variations in mood that may not be attributable to athletic injury.

I hope to collect initial data in the week beginning March 1st. Ideally I would like to collect data when the team are all together at either a practice session or team meeting, this will enable all data to be collected at one time, thus ensuring the minimum amount of disruption to your schedule. All follow-up data on injured athletes will be collected in the athletic training room, with the consent of the athletic trainers.

I hope that you will look favorably upon my request, I would be more than happy to address any questions or concerns you may have regarding this study. My home telephone number is 348-9214, and my e-mail address is jasmin4@hotmail.com. Dr. W.D. Russell is the faculty advisor for this study, Dr. Russell can be reached at 581-2418, e-mail cfwdr@eiu.edu.

Yours Sincerely,

JASMIN HUTCHINSON

DR. W.D. RUSSELL

1530 1st Street, #2
Charleston, IL. 61920
February 17th 1999

Athletic Trainer

I am a graduate student in the Department of Physical Education. I am writing to request permission to approach injured athletes to serve as participants for my masters thesis. My thesis will be examining athletes' emotional response to injury, and will be attempting to establish whether a relationship exists between an athlete's post-injury mood state and his/her personality orientation.

The psychology of athletic injury is an important area of relevance for coaches, trainers and athletes alike. It is hoped that by increasing knowledge of emotional response to injury we will be able to anticipate and deal with an athlete's thoughts, emotions and behaviors during rehabilitation. This should hopefully improve compliance rates to such programs while simultaneously improving an athlete's psychological adjustment to the potential trauma of an athletic injury. Ultimately it is hoped that such endeavors will enhance the likelihood of injured athletes making a rapid and successful return to sport.

Athletes from the following teams; baseball, softball, wrestling, men's tennis, women's tennis, women's rugby, men's track and field and women's track and field will hopefully be taking part in this study. All athletes will initially complete two inventories; The Profile of Mood States and The Paratelic Dominance Scale. The Profile of Mood States will provide a measure of total mood disturbance while the Paratelic Dominance Scale will provide a measure of an athlete's personality orientation, both inventories take about 5 minutes to complete. Following this initial data collection any athlete who incurs an athletic injury during the collection period March 1st through April 12th will be asked to complete a second Profile of Mood States inventory. A non-injured athlete will also be asked to complete a second Profile of Mood States to control for variations in mood that may not be attributable to athletic injury. In order for me to monitor the health status of the athletes concerned I will need the co-operation of the athletic trainers. The information I need to know is who sustains an athletic injury between March 1st and April 12th, approximately when the injury was sustained and for approximately how long the athlete will be unable to practice / compete. Consent forms for the release of this information will be signed by all athletes who agree to partake in this study. I intend to monitor the health status of the athletes by making twice weekly visits to the athletic training room and speaking with the athletic trainers concerned.

I hope that you will look favorably upon my request. I would be more than happy to address any questions or concerns you may have regarding this study. My home telephone number is 348-9214, and my e-mail address is jasmin4@hotmail.com. Dr. W.D. Russell is the faculty advisor for this study, Dr. Russell can be reached at 581-2418, e-mail cfwdr@eiu.edu.

Yours Sincerely,

JASMIN HUTCHINSON

DR W.D. RUSSELL

APPENDIX D - CONSENT FORM

CONSENT TO SERVE AS A SUBJECT IN RESEARCH

I give my consent to participate in the project that is designed to determine if there is a pattern of mood disturbance in athletes following injury, and if there is a relationship between emotional response to injury and personality type.

If I sustain an athletic injury during the next six weeks I give my permission for the researcher to obtain information about the athletic injury that I have sustained and the severity of this injury.

I understand that the responses that I give to the questionnaire surveys will be kept confidential and that I will not be identified by name in the study.

I understand that this participation is voluntary and that there is no penalty for refusal to participate and that I am free to withdraw my participation at anytime.

If I have any questions about any procedure in this project I understand that I may contact the researcher, Jasmin Hutchinson, or the director, Dr. Russell.

Signature _____

Date _____

APPENDIX E - INJURY CHART

APPENDIX F - RAW DATA

Athlete	Sex	Sport	Injury severity	Pre-injury POMS	Post-injury POMS	Diff in POMS	PDS	Mode Dominance
1	M	Track	1	160	107	-53	5	Telic
2	F	Softball	3	142	242	100	7	Telic
3	F	Tennis	3	98	165	67	11	Telic
4	M	Track	1	131	99	-32	14	Paratelic
5	M	Tennis	1	130	144	14	10	Telic
6	M	Football	2	107	99	-8	12	Telic
7	M	Football	1-2	114	168	54	9	Telic
8	M	Tennis	2	128	164	36	12	Telic
9	M	Track	1	123	141	18	7	Telic
10	F	Rugby	2	141	234	93	15	Paratelic
11	F	Rugby	1	167	122	-45	19	Paratelic
12	F	Rugby	1	101	156	55	16	Paratelic
13	M	Football	2	127	147	20	13	Paratelic
14	M	Track	1	148	170	22	25	Paratelic
15	M	Track	1	138	184	46	4	Telic
16	F	Track	1	130	174	44	14	Paratelic
17	M	Football	2	134	160	26	24	Paratelic
18	M	Football	1-2	123	163	40	12	Telic
19	M	Football	3	107	146	39	23	Paratelic
20	M	Football	2	129	147	18	11	Telic
21	M	Football	2	147	194	47	13	Paratelic
22	M	Football	1-2	121	107	-14	10	Telic
23	M	Football	1-2	112	124	12	11	Telic
24	M	Football	1-2	132	182	50	14	Paratelic
25	M	football	3	120	170	50	15	Paratelic