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Understanding the Psycho-Emotional Experience of Major Athletic Injury

By

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Dedication

To my parents, Art and Faye, and my brother, Jeffrey, for their unconditional love, support, understanding and encouragement of all of my endeavors, no matter how crazy they may have been. My family is the foundation of my strength and creativity. Nurture is more important than nature.

To Dr. David Collinson Reid, my mentor. You have challenged and guided me for many years, and you leave an incredible legacy to live up to. I have the utmost respect for your wisdom and knowledge, and your passion for teaching. You can give a person a fish and he will eat for a day, but if you teach a person to fish, he/she will eat for a lifetime.

And to the athletes, my patients, who continue to inspire and challenge me to be a better doctor, a better person, a better colleague, a better friend.

Abstract

The purpose of this study was to better understand the psycho-emotional experience of high performance athletes to major injury, and to provide suggestions for sport medicine practitioners that are derived from athlete's experiences to better assist them in psycho-emotional rehabilitation of athletic injury.

This descriptive study utilized qualitative methods. Prospective, semi-structured interviews were conducted with five participants. Verbatim transcripts of the interviews were obtained and the data extracted from the words of the participants. The data were inductively analyzed using global analysis, thematic and open coding. Analysis was conducted from specific to general themes. Validity of the data was ensured by thick description, investigator triangulation and member checking.

The psycho-emotional experience was broken down into three phases: early, mid- and late rehabilitation and issues unique to each phase were presented. Suggestions were made for the health care team to help ease the physical rehabilitation by attending to the psycho-emotional issues.

Acknowledgements

I must first thank the participants of this study. You allowed me, a stranger, into your private and personal thoughts, and enabled me to learn from and to use your experience to help others. You and I have been a pioneer in this work and I am truly thankful for the time you have given me. Good luck with your sporting careers and all you choose to do with your life.

I must thank Lynda Dinsmore, for the countless hours of transcription of these precious interviews. Thank you for 'taking it on the wrist' for me.

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Chapter 1:

The Question

Very little is known about high performance athletes' reactions to major injuries. "The vast majority of athletes do not properly prepare for nor are they properly equipped to cope with an injury once it has occurred. In fact, the psychological dimensions of athletic injury... are often overlooked" (Shelley, 1998, p. 2). Adding a narrative approach to the biomedical study of athletic injury allows for both the psyche and the pathophysiology of the athlete to be the subject of healing (Brock & Kleiber, 1994). This study is designed to answer the question: What is the psycho-emotional experience of a major athletic injury? (Psycho-emotional refers to the cognitive, affective, and emotional aspects of an athlete's reaction to injury.) This study is designed to reach a better understanding of the experience of high performance athletes to major injuries. Brock and Kleiber (1994) point out,

> The clinician who looks with the biomedical gaze sees the injury ... [but] is unaware of the illness. Taken together as complimentary, an analysis of the patient's illness narrative and biomedical assessment can bring the suffering person fully into clinical focus and anticipate roadblocks to and avenues for healing (p.427).

Numerous authors have suggested approaches to managing the psycho-emotional upheaval that athletic injury causes (e.g., Crossman, 1997; Faris, 1985; Heil, 1993; Nideffer, 1983; Wiese & Weiss, 1987). Injury has the potential to cause disruption in the athlete's mood, emotions, perceptions, cognitions and behaviors. It is well accepted that upon becoming injured, athletes experience a wide spectrum of emotions such as fear and rage. (Weiss & Troxel, 1986), anxiety and anger. (Leddy, Lambert, & Ogles, 1994), and depression (Chan &

Grossman, 1988). Emotions and mood states are typically negative following an injury, but tend to improve towards more positive mood states as rehabilitation and time progress (Leddy et al, 1994; McDonald & Hardy, 1990; Morrey, Stuart, Smith, & Wiese-Bjornstal, 1999; Udry, Gould, Bridges, & Beck, 1997).

Martens (1987) and Dewar and Horn (1992) suggested an alternative paradigm to research human behavior, one where the researcher looks for patterns of intact organisms or groups and to search for synthesis rather than reduction of explanations. They stress the investigation of the entire subjective experience of individuals as a way to better understand how people perceive, create and interpret their world. Understanding the psychosocial impact that injury has upon the athlete is important for the sport medicine professional. It can impact decisions such as the optimal timing of surgical intervention (Freedman, Glasgow, Glasgow, & Bernstein, 1998; Shelbourne & Fould, 1995), compliance with rehabilitation (Duda, Smart, & Tappe, 1989; Fisher, Domm, & Wuest, 1988; Lampton, Lambert, & Yost, 1993; Smith, 1996) and ultimately the athlete's return to competition. "The clinicians' ability to identify those whose [psycho-emotional] illness experience will be most problematical and their anticipation of the shape that problematical experience may take should prompt interventions to modify the course of distress and lead to more rapid rehabilitation" (Brock & Kleiber, 1994, p.427).

For sport medicine practitioners, two important questions arise: how can we better understand the meaning and impact an athlete ascribes to his or her experience with athletic injury, and how can that understanding assist in providing better, more holistic approaches to assisting the injured athlete?

As a medical doctor practicing sport medicine with high performance athletes, it has been my experience that athletes are, in general, not fully rehabilitated from major injuries at the time of their return to sport. I make this comment because traditional rehabilitation programs focus almost exclusively upon the physical and the biomedical issues the injury has incurred.

In my clinical medicine practice, athletes frequently relate a hesitation and reluctance to return to sport at the culmination of the physical rehabilitation program. While they comment that their bodies feel ready, their emotions, cognitions and fears are not yet at the same stage of rehabilitation. I attribute many of the undue obstacles and slow progress in recovery to a lack of psycho-emotional rehabilitation accompanying the physical rehabilitation. The psychosomatic component of rehabilitation cannot be underestimated. A better understanding of the meaning a patient ascribes to his/her injury will enable the medical care team to better assist the patient's overall rehabilitation and expedite a successful return to sport. Brewer (1994) stated that if research on psychological adjustment after athletic injury is to have an impact on the actions of the medical care team, it is important to evaluate the behavioral impact of psychological adjustment on athletic injury rehabilitation and recovery of physical functioning.

In this study, high performance athletes are defined as athletes participating at inter-collegiate, national or international levels of competition. A major injury is one that curtails the athlete from participating for 4-12 weeks, and has occurred at a critical point in the competitive season, as determined by the athlete. The medical care team is comprised of the doctor(s), physical therapist(s), athletic therapist(s), and sport psychologist(s) who work with the athlete to regain his/her physical and emotional health.

Chapter Two:

Literature Review

The Psychology of Injury – Stage Models

In the past two decades, there has been a proliferation of theories and models to explain and predict the psycho-emotional reaction to athletic injury (Doyle, Gleeson, & Rees, 1998). A deeper understanding of this response could assist in establishing strategies to manage the injured athlete during rehabilitation and subsequent return to training and competition. A number of authors have advocated a stage approach to explain the psychological reaction to injury. Stage models are based on the premise that an injured athlete passes through a predictable and orderly series of emotional responses during the rehabilitation process, culminating in positive adjustment and return to sport (Doye et al., 1998). Numberous authors (Astle, 1986; Brewer, 1994; Lynch, 1988, Pederson, 1986; Rotella, 1985; Rotella & Heyman, 1993) have applied the Kubler-Ross (1969) grief model to athletic injury, suggesting that injury can be viewed as the instant death of an athletic career, and that injured athletes react to a loss of the athletic aspect of self and pass through sequential stages of denial, anger, bargaining, depression and acceptance as they progress towards physical and psychological recovery from the injury. McDonald and Hardy (1990) proposed a sport-specific stage model of psychological reaction to athletic injury. They suggested recovery includes "reactive" and "adaptive" stages with a progression from negative affective responses towards more positive affective responses as rehabilitation progresses.

Heil (1993) presented an alternative to the stage models for psychological recovery from athletic injury. He proposed the "affective cycle of injury; the fundamental assumption of which is that movement through stages is not a one-time linear process but is a cycle that may

repeat itself" (Heil, 1993, p.36). According to Heil, athletic injury recovery progresses through cyclic stages of distress, denial and determined coping, but that pendular relapses and progressions between stages may occur. Heil states distress includes shock, anger, bargaining, anxiety, depression, isolation, guilt, humiliation, preoccupation and helplessness, and recognizes the disorganizing impact injury has on emotional equilibrium. Denial takes the form of disbelief and refusal to accept the severity of the injury. Distress and denial are prominent early in the course of rehabilitation, but with time, determined coping assists the athlete to accept the injury and its impact on athletic goals. This implies acceptance of the severity of the injury and its impact on the athlete's goals for sport and competition, and the purposeful use of coping resources while working through the recovery process. Emotions and behaviors may shift between distress, denial and determined coping as the rehabilitation proceeds.

A common sequence of specific emotional reactions has not yet been determined and cannot account for individual differences (Brewer, 1994). Two athletes experiencing similar injuries may experience widely varied psycho-emotional reactions to the injury. The athlete's role on the team (i.e., starter or "bench-warmer"), future in sport, work invested in sport career and future for sporting opportunity (i.e., rookie or final-year player) will all influence the psycho-emotional reaction to athletic injury. One athlete may view the injury in a positive light, learn from the rehabilitation experience and apply the new skills to later training, while the other athlete may view the injury as a destructive, negative occurrence with little hope for successful rehabilitation and return to competition. Indeed, there is only limited scientific support for a stage model of psychological adjustment to athletic injury (Doyle et al., 1998; Wiese-Bjornstal, Smith, Shaffer, & Morrey, 1998).

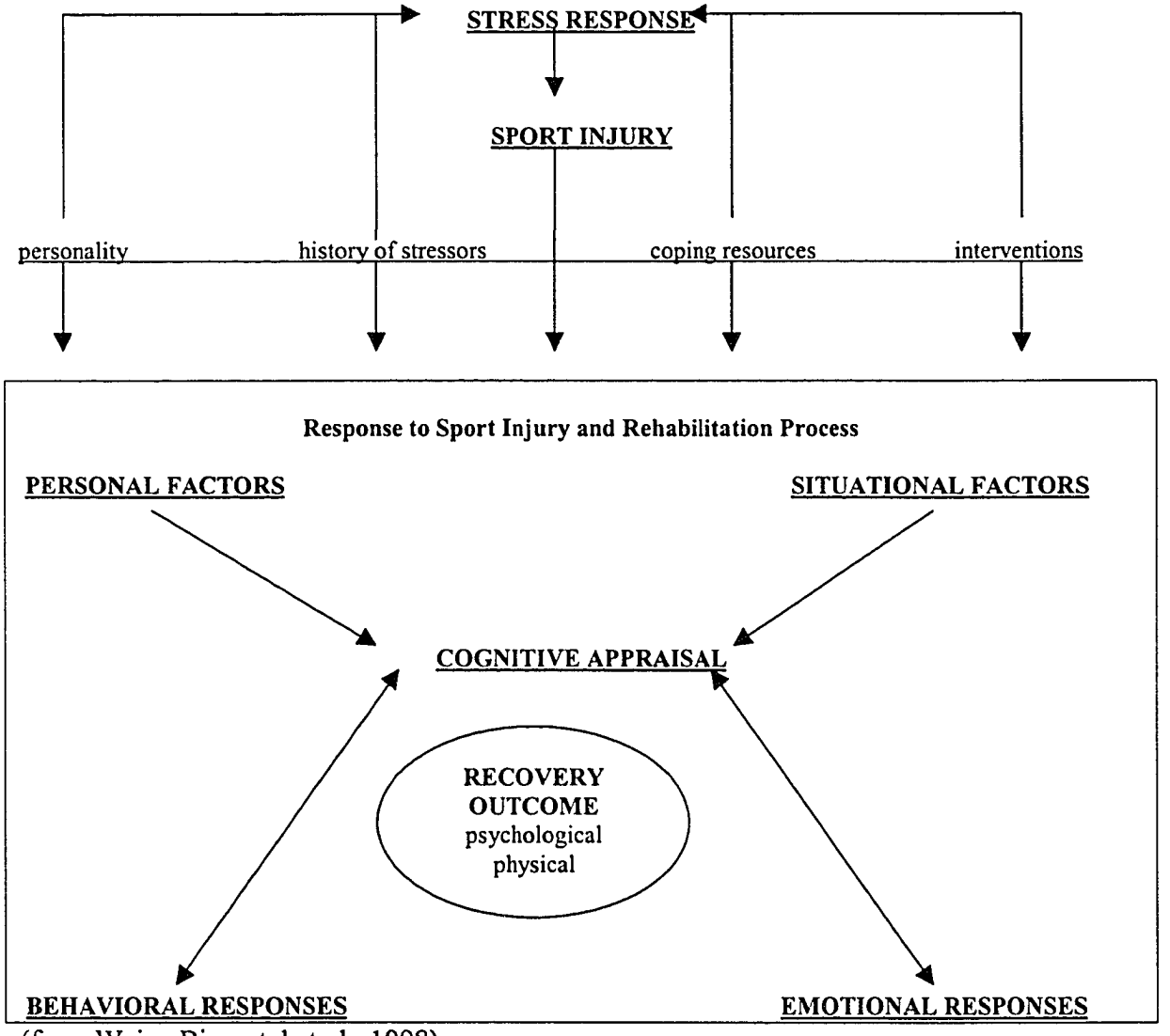
Cognitive Appraisal Models

In an attempt to explain the individual differences that stage models could not account for, numerous authors (Andersen & Williams, 1988; Gordon, 1986; Lazarus & Folkman, 1984; Weise-Bjornstal et al., 1998; Weiss & Troxell, 1986) introduced cognitive appraisal models of adjustment to athletic injury. In these approaches, understanding how the injury is perceived and the meaning attached to the injury by the athletes is important to understanding the athlete's emotional reaction to the injury and the subsequent behavioral response. Wiese and Troxell (1986) considered athletic injury as a physical and psychological stressor and proposed that various personal and situational factors would influence the manner in which the individual interpreted the athletic injury. The cognitive appraisal determined the emotional response to the injury, which, in turn, influenced the behavioral response. Simply defined, an emotion is a "specific feeling state generated in reaction to certain events or appraisals" (Hanin, 2000, p.269). For example, cognitive appraisal of an injury may cause the athlete to wonder, "What if I don't come back from this injury?" "What will my coach and teammates think of me?" This leads to an emotional response that may be physiological, such as an increase in heart rate and muscle tension, or psychological, such as fear of the consequences of the injury. This emotional response may lead to alterations in motivation and compliance with rehabilitation that ultimately affect the recovery from the injury.

Weise-Bjornstal et al. (1998) expanded upon the work of Andersen and Williams (1988) and suggested that the psychosocial response to athletic injury is a dynamic process. They synthesized existing models of the psychological response to injury to create an integrated model, and suggested that pre-injury factors (i.e., personality, history of stressors, and coping resources) and post-injury factors (i.e., personal and situational factors, cognitive appraisal, emotional and behavioral responses) influence the psychological and emotional responses, which change with time, and recovery is conceptualized as the process of physiological and

psychological rehabilitation (see Figure 1). The personal and situational factors of the post-injury model exert a continuous influence on the dynamic core elements (cognitive appraisal, emotional response, and behavioral response), culminating in recovery.

Figure 1: The Integrated Model of Response to Sport Injury



(from Weise-Bjornstal et al., 1998)

The integrated model of response to sport injury (Wiese-Bjornstal et al., 1998) was presented here for a number of reasons. This model has been widely referenced in the sport psychology literature. It has been clinically evaluated (LaMott, 1994; Morrey, 1997) and

general support for the model has been evident. Findings indicate that cognitive and emotional changes were experienced and were dynamic throughout the course of recovery. This model integrates the valid components of various other models into a cohesive, functional, holistic framework that simplifies the understanding of psychological reaction to injury. Moreover, this model reflects what I have experienced with regards to injury and rehabilitation from a personal perspective as an injured athlete, and from a professional perspective with what I have observed my patients struggling with during the courses of their injury and rehabilitation.

Quantitative Research Findings

Assessment of the psycho-emotional responses to injury has relied heavily on quantitative research (Doyle et al., 1998), including responses to inventories such as the Profile of Mood States (POMS: McNair, Lorr & Droppleman, 1981) and the Emotional Response of Athletes to Injury Questionnaire (Smith, Scott, & Wiese, 1990). McDonald and Hardy (1990) used the POMS and the Marlowe-Crowne Social Desirability Scale short form (Strahan & Gerbasi, 1972) to discover that the affective patterns of the rehabilitating athlete were related to the perception of progress in rehabilitation. Leddy, Lambert, and Ogles (1994) utilized the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), the State-Trait Anxiety Inventory-Form Y (Speilberger, Gorsuch, & Lushene, 1970), and the Tennessee Self-concept Scale (Roid & Fitts, 1988) to demonstrate that injured athletes tended to score themselves higher on depression, anxiety, and self-esteem scales following injury in comparison to pre-injury.

Morrey, Stuart, Smith and Wiese-Bjornstal (1999) employed the Emotional Response of Athletes to Injury Questionnaire, the Incredibly Short Profile of Mood States and the Sport Inventory for Pain (Meyers, Bourgeois, Stewart, & LeUnes, 1992) to learn that injured

athletes experience statistically significant mood changes throughout rehabilitation, which may hinder the recovery process in the early stages. They found that fear, anger and anxiety prevail initially following injury and surgery, but as progression in rehabilitation is experienced, these negative mood states subside and are replaced by more positive mood states, including hope, optimism, and self-confidence. Udry (1997) revealed that injured athletes employ instrumental coping (i.e., attempt to alleviate stress/discomfort through activities such as finding out more about a health condition, listening to the advice of health care providers) when recovering from anterior cruciate ligament reconstruction surgery, and that this was a statistically significant predictor of adherence to the rehabilitation process. To illustrate this, Udry utilized the Coping With Health and Injury Problems scale (Endler & Parker, 1992), the POMS, and the Social Support Inventory (Brown, Alpert, Lent, Hunt, & Brady, 1988; Brown, Brady, Lent, Wolfert, & Hall, 1987).

The Coopersmith Inventory (adult form) (Coopersmith, 1990) was employed by McGowan, Pierce, Williams and Eastman (1994) in their evaluation of self-diminution following athletic injury. Their findings are consistent with others (Lampton, Lambert, & Yost, 1993; Smith, Stuart, Wiese-Bjornstal, Milliner, O'Fallon, & Crowson, 1993) indicating that following traumatic injury, athletes tend to suffer a diminishment of affect and feelings of self-worth. Wasley and Lox (1998) used the Rosenberg Self-esteem Inventory (Rosenberg, 1968) and the Ways of Coping Questionnaire (Folkman & Lazarus, 1988a) to discover that chronic athletic injuries (defined as an injury of long or lingering duration or slow progress) have a greater effect on lowering self-esteem than acute injuries (defined as sudden, brief or severe injury).

A wide variety of questionnaires have been applied in quantitative research that has examined psycho-emotional reactions to athletic injury. However, scores from an inventory represent a point-in-time picture of the athletes' coping and fail to represent the dynamic

nature of the reaction to injury unless a longitudinal design utilizing repeated measures is employed. Brewer (2001) pointed out that quantitative studies have generally demonstrated that emotions following injury tend to be negative and become more positive as rehabilitation progresses, but qualitative studies have indicated negative emotions such as depression and frustration tended to be pervasive throughout recovery, even to the time of return to competition.

Despite the popularity of inventories to assess emotional response to sport related injury, Pearson and Jones (1992) argued that a questionnaire cannot fully index the diversity of idiosyncratic responses to injury. May and Sieb (1987) highlight 40 emotions that have been observed clinically following athletic injury; it is unlikely that a predetermined inventory would be able to index such an expansive range of emotions. Weise-Bjornstal et al. (1998) raised concern for the measurement of psycho-emotional response to injury and implied a need to pursue qualitative methods and analysis in future research.

Psychosocial Process of Injury

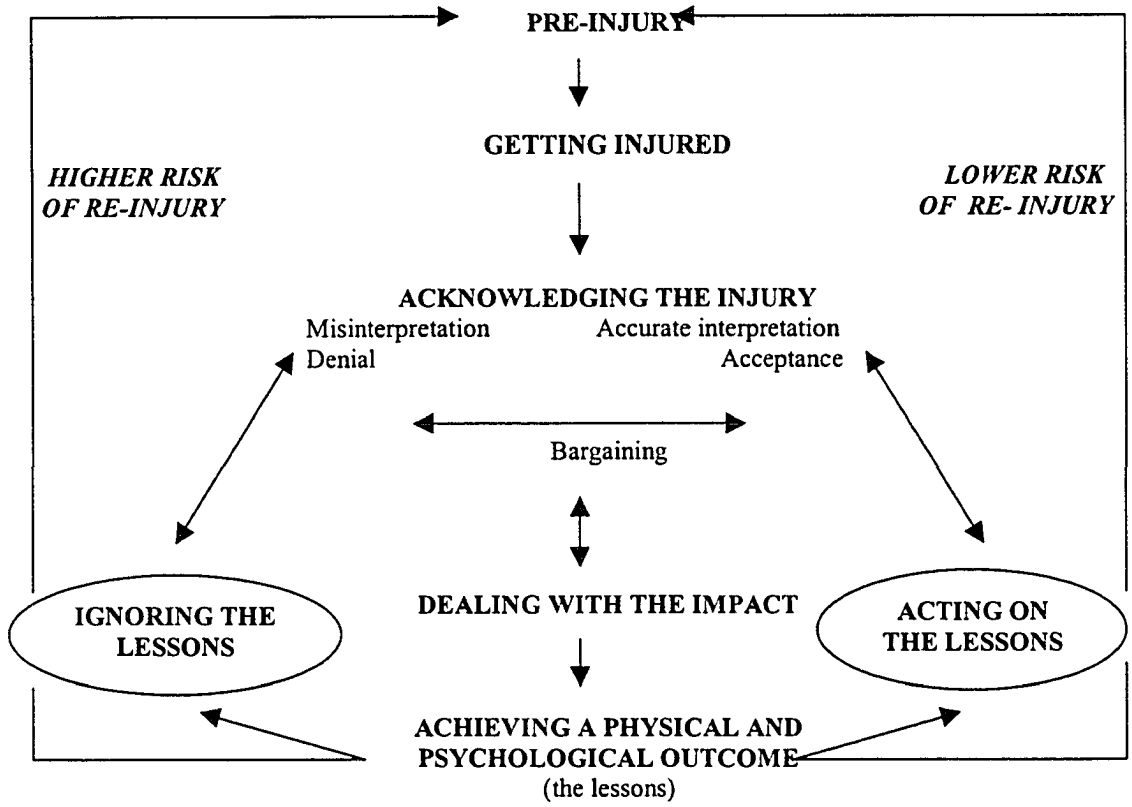
Evans and Hardy (1995) assert that the psychology of athletic injury is a complex phenomenon, best examined by qualitative research methods to identify the determinants, outcomes and processes underlying the psychological responses to injury. Prior to 1993, the models that had been proposed to explain psychological response to athletic injury were adapted from other substantive areas and not from data derived from athletes' experiences. Rose and Jevne appear to be the first to have examined the psychosocial process(es) of athletic injury from the perspective of the athlete. Employing grounded theory (Glasser & Strauss, 1967), Rose and Jevne (1993) interviewed seven athletes (four male, three female) from seven different sports (triathlon, rugby, running, soccer, Canadian football, Australian rules football, and netball). The time course for injury and return to competition was variable

among the sample. Rose and Jevne interviewed their participants between three months and 15 years following the injury. Three of the athletes were still rehabilitating their injury, and two had retired from sport at the time of the interviews. The nature of the injuries in Rose and Jevne's study was extremely variable as well. Their participants suffered injuries ranging from chronic overuse and degenerative injuries, to acute and significant knee ligament tears. One participant was "injured" but was without a diagnosis for her injury. All of the injuries in the sample of Rose and Jevne were typical or expected for the sport the participant was engaged in.

Upon analysis, the data were found to cluster into four major phases of athletic injury: getting injured, acknowledging the injury, dealing with the impact of injury, and achieving a physical and psychosocial outcome. Using these themes, Rose and Jevne developed a model of psychosocial process(es) associated with developing and recovering from sport injuries that was grounded in the athlete's experience (Figure 2). They discovered that there were "lessons" to be learned from athletic injury and the impact injury has on the psycho-emotional recovery and eventual return to sport depends on the athlete learning or ignoring the lessons.

There are limitations to Rose and Jevne's study. The study population included seven athletes with acute and chronic injuries that had precluded their participation in sport for a minimum of only seven days. This is a highly heterogeneous sample with varying levels of injury severity, and rehabilitation needs. The use of retrospective accounts from the athletes may imply a bias as the recollection and reporting of the experience may be distorted by experiences over time. The athletes in their study were interviewed three months to 15 years post-injury. The competitive level of the athletes ranged from amateur to professional. Because of monetary compensation and contract negotiations for professional athletes, there may be issues unrelated to injury and athletic participation that hinder the recovery of professional athletes. Despite these limitations, Rose and Jevne's work is

Figure 2: Risk Model of Psychosocial Processes Associated with Athletic Injury



(from Rose & Jevne, 1993)

important given that the results are grounded in the athletes' experiences rather than applying a preexisting model. Rose and Jevne found the results of their study to be consistent with much of the theoretical literature describing the psychosocial response to athletic injury.

The Psychology of Season-Ending Injury- An Major Injury in the Extreme

Most people would recognize a season-ending injury as a major injury. There is a paucity of research regarding the psychological reaction to season-ending athletic injury. A search of the literature indexed in Medline, PsychInfo and Sport Discus, using keywords "athletic injury, season-ending, coping, rehabilitation and recovery" yielded only four studies.

A review of Dissertation Abstracts International provided only one qualitative thesis pertaining to career-ending injury, but more investigating the experience of athletic injury in general.

Since Rose and Jevne (1993) published their investigation of the psychosocial process(es) of athletic injury, others have begun to look at the psychology of injury using qualitative methods. Udry, Gould, Bridges and Beck (1997) suggested that qualitative inquiry is well suited for capturing the richness and complexity of individual experiences, and that a need exists to look beyond the hypothesized stages of injury to identify the range of reactions athletes report as a result of serious injuries. Using a grounded theory approach, Udry and associates interviewed a homogeneous group of 21 elite United States National ski team athletes (11 males, 10 females). The average age of the participants was 23.9 years and they had skied competitively for an average of 14.5 years. All participants had recovered from injuries typical or expected for their sport. All participants in the study were absent from sport for a minimum of three months and the retrospective interviews took place within 4 years of the injuries, after the athletes had rehabilitated their injuries. Fourteen skiers were unsuccessful at returning to competitive skiing following their rehabilitation, while seven skiers were able to return to the World Cup circuit after recovery from their season-ending injury. Twelve of the 21 athletes were interviewed after their first season-ending injury, while nine athletes had suffered a prior season-ending injury.

This study examined the range of psychological responses of injured elite skiers to season-ending injuries (defined as an injury that prevented a skier from completing a ski racing season and kept the skier out of training for a minimum of three months), and explored the perceptions of the athletes regarding long-term benefits they obtained from their injury.

Content analysis of the data revealed 136 raw data themes that were clustered into four general dimensions of athletic injury: (a) injury-relevant information processing/awareness,

(b) emotional upheaval/reactive behavior, (c) positive outlook/coping attempts, and (d) other aspects that did not classify into the previous dimensions. The injury-relevant information processing/awareness dimension was comprised of four higher order themes: pain of injury and rehabilitation, awareness of injury and injury extent, questioning, and recognizing negative consequences. Six higher order themes emerged to delineate the emotional upheaval/reactive behavior dimension. They were emotional agitation, vacillation of emotions, emotional depletion, isolation/disconnectedness, shock/disbelief, and self-pity. Four higher order themes came together to form the general dimension of positive outlook/coping attempts; acceptance/dealing with it, positive coping attempts, good attitude/optimism and relief about progress. The "other" dimension was comprised of responses primarily from two participants. One athlete expressed ambivalent reactions towards her injury, and the second athlete ended his career because of the injury.

Udry et al. (1997) discovered three benefits to injury from the accounts of the skiers' experiences of season-ending athletic injury: (a) personal growth, (b) psychological performance enhancement, and (c) physical-technical development. Personal growth is a dimension that was comprised of the four higher order themes of gaining perspective, personality development, developing other aspects of non-skiing life, and learning better time management. The psychologically based performance enhancement dimension coalesced from the higher order themes of increased efficacy, enhanced motivation and realistic expectations. The higher order themes of physical health, awareness of improvement and skiing technically better aligned to produce the dimension of physical-technical benefits.

Udry et al. (1997) compared their findings to three existing models of injury response and adjustment (Heil, 1993; Kubler-Ross, 1969; McDonald & Hardy, 1990) and found only limited support for some, but not all stages identified in the models. The stage models could not account for a number of aspects of the athletes' experiences as the athletes described.

Udry and her colleagues suggested that the differences among the skiers studied in the time the athletes spent considering and absorbing the impact of the injury and their education regarding their injury and rehabilitation process may explain why such variability is seen in emotional responses to season-ending injury and may be misconstrued by researchers as denial.

Bianco, Malo and Orlick (1999) also used a grounded theory approach to gain a better understanding of the psychological aspects of the sport injury and illness experiences of elite skiers. While this study did not specifically address the reaction to season-ending injury, ten of the 12 skiers were away from athletic participation for six to 24 months. This time frame constitutes a "season" and the results of the study can be considered representative of athletes suffering season-ending injuries.

The participants in Bianco et al.'s (1999) study were 12 members (eight current, and four retired) of the Canadian national ski team. Two participants had medical illnesses that precluded their participation in ski racing (infectious mononucleosis, and chronic fatigue syndrome), while 10 participants sustained serious injuries typical for ski racing (i.e., knee ligament tears, fractures of the pelvis and spine, head injuries). All interviews were conducted between six months and five years post-injury for the current ski team members, and between two and 16 years post-injury for the retired ski team members. During the interviews, the skiers were allowed to discuss their most recent serious injury, or any other injury they felt was serious to them and resulted in psychological trauma.

Hierarchial content data analysis of the 12 interview transcripts proceeded from specific to general levels and revealed three distinct phases to sport injury: (a) the injury-illness phase, (b) the rehabilitation-recovery phase, and (c) the return to full activity phase. The impact the injury would have on the athlete's career, personal experience with injury, the timing of the injury, and the athlete's team standing at the time of injury influenced the injury-illness phase.

Fatigue, poor concentration, pain and discomfort of surgery and emotional pain were experienced during the rehabilitation-recovery phase. The athletes were quite tolerant of the physical demands of rehabilitation and employed imagery, aggressive physical therapy and nontraditional therapies in an effort to recover quickly. Cognitive stressors during this phase included the effect a prolonged absence from sport would have on their team status and maintaining the motivational demands of rehabilitation. Belief in the effectiveness of rehabilitation and eventual return to sport was essential to manage the frustration and disappointment of slowed progress and setbacks, but the driving force towards recovery was the desire to resume participation in competitive skiing. The return to full activity phase was found to continue into the first season back, and performance results were less than optimal. Concern and fear of re-injury was a major stressor and was related to doubts about physical and mental readiness. Maintaining a positive outlook and belief in one's abilities was found to be a key motivational factor during this final phase of recovery from injury or illness.

Two transition points separated the three phases: the decision to seek medical advice/treatment, and the decision to return to sport. For the sport medicine practitioner, the information discerned about the transition points is meaningful. Once an injury or illness was diagnosed, the athletes' decision to receive treatment was influenced by the severity of the injury or illness, the importance of upcoming competitions, and the athletes' world ranking. When the athletes were faced with the decision to return to sport, perceived readiness, importance of upcoming competitions, and pressure from the national sport organization were contributing factors, but the decision to return to skiing was based primarily on medical recommendations.

Bianco et al.'s (1999) findings support and expand what had previously been reported in the psychology of injury literature (e.g., Brewer, 1994; Smith et al., 1990). Bianco and colleagues (1999) demonstrated findings consistent with Wiese-Bjornstal et al.'s. (1998)

integrated model of response to sport injury. The experiences that the elite skiers describe towards sport injury and illness relate that: (a) sport injury and illness is a stressful experience, (b) the response to injury/illness is altered by personal and situational factors, (c) the response to injury and illness is manifested cognitively, emotionally and behaviorally, and (d) the progression of rehabilitation dynamically influenced each skier's cognitive appraisal and coping. What the integrated model does not describe, that the Bianco et al. study highlighted, is the decision-making process of the injured skiers and the psychological issues surrounding return to sport.

Bianco et al. (1999) suggested that viewing sport injury as a series of phases provides a framework for dividing a complex experience into manageable components. They point out that the experience of debilitating illness seemed very similar to that of injury, but there are factors unique to illness. Illness generally resulted in contending with more uncertainty regarding return to sport and longer recovery periods, resulting in more persistent stress. Illness presented a greater challenge to believing in recovery, as there appeared to be less clear indicators of progression and recovery. However, the results from this study are based on only two of their 12 athletes' experiences and are only suggestive, not conclusive of the athletes' reactions to illness precluding athletic participation. The psycho-emotional features of illness may be radically different from those occurring from injury that is typical for the sport of alpine skiing.

Athletic injury and rehabilitation can be a long, arduous, and painful process. Understanding how athletes cope with rehabilitation and what facilitates the process should facilitate the sport medicine practitioner's attempts to optimize the athlete's recovery from injury. Gould, Udry, Bridges, and Beck (1997a) retrospectively interviewed 21 elite, United States national ski team skiers to discern strategies for coping with season ending injuries. Gould and associates define coping strategies as specific actions taken to deal with a stressor.

"Driving through", distracting one's self, managing emotions and thoughts, seeking and using social resources, avoidance and isolation, and taking notes and drawing upon lessons learned were the strategies utilized by elite skiers to cope with season-ending injury. The dimension of 'driving through' emerged from themes of "doing things normally", determination and motivation, setting, working toward and achieving goals and focusing on rehabilitation/training. The distracted self dimension was derived from the lower-order themes of keeping busy and seeking out changes of scenery. Six higher order themes formed the general dimension of "managed emotions and thoughts": mental preparation, keeping positive focus, being patient, enjoying/soothing self, dealing with and expressing injury emotions and accepting the injury. "Seeking social support" and "using other injured athletes as models" were the higher order themes that produced the general dimension of "seeking and using social support". Avoidance and isolation were unsupported by higher order themes, but "drawing upon previous injury experience" and "viewing injury as a learning experience" collapsed into the final general dimension of "taking note and drawing upon injury lessons".

The skiers in the study by Gould et al. (1997a) found recovery to be facilitated by interpersonal resources (social support), having accessible quality medical resources, perceiving fortunate circumstances, being in an environment conducive to rehabilitation, past experience with injury, and financial backing. The higher order themes that emerged into the first dimension of "recovery facilitating factors" included having athletes/models who had been injured and being able to talk to and observe previously injured ski team members, being able to rehabilitate with others, and support from family, friends, coaches and physical therapists. Structured, high quality rehabilitation and medical personnel that were accessible were the themes that converged into the dimension of accessible quality medical resources. The higher order themes from the dimension "facilitating factors of fortunate circumstances" included timing of injury, positive health status and an ability to heal well. Three first-order

themes converged to illustrate the dimension of "facilitation of recovery through an environment conducive to rehabilitation": not having pressure from others, having access to training facilities and living in an active environment loaded on this dimension.

The findings reported by Gould et al. (1997a) are significant and relevant to the present study because they highlight, from the athletes' perspectives, factors of importance to easing the rehabilitation process that the sport medicine team needs to consider and implement. Inquiring of, and educating injured athletes to drive through, distract themselves, manage emotions and thoughts, seek and utilize social resources, avoid isolation, and learn from the rehabilitation experience may foster an improvement in the rehabilitation process. Health care professionals working with injured athletes must ensure the athletes are receiving quality medical care, and create an environment conducive to rehabilitation that promotes the positive aspects of their injury and recovery.

Gould et al. (1997a) also described differences in coping strategies and facilitating factors between skiers who were successful at returning to competition, and those who were not successful. They found that a higher percentage of skiers who returned to sport managed emotions and thoughts, visualized and were mentally prepared, and were patient/took it slow in their recovery. The unsuccessful skiers reported seeking and using social resources, and using other athletes as models as their primary coping strategies. In facilitating their recovery, a greater percentage of skiers who were successful at returning to sport reported positive health status themes more than their less successful counterparts. An unexpected gender difference was also found in this study by Gould et al. (1997a). Female athletes tended to utilize determination, motivation, distracting self, keeping busy and seeking social support, while male athletes tended to work towards accomplishing goals.

Gould et al. (1997a) concluded that the coping strategies used by the elite skiers in their study tended to be adaptive (versus maladaptive). They suggest that coping is a process of

regaining emotional control and focusing on the task of rehabilitation. By understanding the range of strategies that many athletes employ, and the factors that facilitate injury recovery, sport medicine practitioners will be better able to advise injured athletes on coping with the stress that accompanies sport related injury and rehabilitation.

Gould et al. (1997c) also investigated the stress sources encountered when athletes rehabilitate from season-ending injuries. Through content analysis of retrospective interview transcripts, 182 raw data themes collapsed into eight higher order dimensions of stress sources. Psychological and social concerns were the stress source with the largest percentage (100%) of athletes citing a theme within it. Psychological stress arose from issues such as questioning the ramifications of the injury, dealing with the losses associated with the injury (such as the loss of a position on the Olympic team, delay of aspirations, and loss of making significant advancements in personal skill level), comparing one's self to others, maintaining one's place on the team, fear, and not feeling mentally ready to ski at the conclusion of the recovery. The social concerns dimension sources of stress arose from over-involvement of significant others, feeling isolated, negative relationship interactions, recovery expectations of others, and changes in coaching situations. "Physical concerns" was the third largest dimension and included stress from poor performance, pain, physical inactivity, adjusting to physical changes from injury, and getting re-injured. The fourth dimension of stress sources from season-ending injuries arose from medical and rehabilitation concerns. Financial concerns were a major dimension of stress sources. This primarily arose out of difficulties with sponsors, loss of financial opportunities and personal financial obligations. Career concerns was a general source of stress for the injured skiers in this study, along with missed non-ski opportunities.

Gould et al. (1997c) suggested that if the medical community is to understand the psychology of injury, it is important to understand why injuries are stressful to the athlete.

Stress sources were defined as situations and/or interactions that induced feelings of worry, apprehension, self-doubt, nervousness, or muscle tension. Verifying the stress sources accompanying rehabilitation may help to alleviate major problems in the recovery. Skiers who were unsuccessful at returning to their pre-injury level of competition in sport reported experiencing more stress sources than the athletes successful at returning to skiing. They experienced a lack of attention/empathy, negative relationship interactions, poor performance and physical inactivity as dominant sources of stress.

Shelly (1998) prospectively examined the lived-experiences of injured college athletes to understand the experiences associated with the onset and rehabilitation of athletic injury, and to learn what factors impact or influence the perceived injury experience. Shelly utilized a phenomenological approach to analyze semi-structured interviews with four athletes (one male, three females) at three times during rehabilitation: (a) at a no-participation phase; (b) at a limited participation phase; and (c) at a return to sport phase. The four athletes in Shelley's study were injured and made their recovery and return to sport in the same season. Although it is recognized that the timing of injury (early in the season with expectation for return within the season, as compared to late in the season with no hope for return to competition) is an important factor, and may present different psychological issues than season-ending injuries, Shelley's findings are important. It is not unreasonable to expect that athletes sustaining season-ending athletic injuries would experience similar emotions. For this reason, Shelly's work is included for review.

Seventeen common themes emerged from the athletes recounting of their experiences, along with 17 factors that influenced their experience with injury. The themes and factors corresponded to the three times of inquiry during the study. The six themes during the time of no participation included: (1) bitterness of the injury situation and jealousy towards healthy teammates; (2) frustration, guilt and anger for the inability to train; (3) feeling misunderstood,

ignored and abandoned by coaches and teammates; (4) concern for the coach's perceptions of their injury and rehabilitation; (5) a sense of hope and confidence for returning to sport; and (6) a fear of re-injury or not returning to the previous level of play. These six themes were positively influenced by whether or not the athletes compared themselves to healthy teammates, focused on their inabilities to train, remained a part of the normal daily routine of the team, focused on coaches perceptions, were able to positively focus on the future and overcoming the injury, and the preoccupation with re-injury.

During the time of limited participation, six themes emerged. Confidence increased and more positive attitudes evolved. A fear of re-injury continued, as did feelings of being unsupported, misunderstood and judged by coaches and teammates. Coaching staff perceptions remained a focus, but the athletes developed more supportive and trusting relationships with the training staff. Caution and doubt remained concerning the ability to overcome the injury and return to the team. These six themes were positively influenced by the athletes' focusing their confidence and developing more positive attitudes towards return to sport, focusing on re-injury, concern for being understood by teammates and coaches, concern for coaches perceptions of their rehabilitation, the development of positive relationships with the trainers, and focusing on the return to sport and contributing to the team.

During the final interview period, the return to sport phase, five common themes emerged. A feeling of satisfaction and increasing confidence grew. Returning to practice influenced more positive emotions. Doubt and apprehension for their return to sport made the athletes cautious, timid and superstitious. The desire to be understood, encouraged and supported by coaches and teammates remained, as did the fear of re-injury in the future. Factors which positively influenced these themes included the athlete's focus on their hard work during rehabilitation, focus on return to daily practice and competition, perceiving they had control

of their return to sport, and they could impact their return to sport, the need to be understood by teammates and coaches, and the focus on re-injury.

Shelly (1998) concluded that there are five common experiences related to injured college athletes returning to sport in their same season as injury: (1) throughout all phases of recovery, the fear of re-injury prevails; (2) throughout the recovery, the athletes' confidence in their abilities grows as progress in rehabilitation is made; (3) during the no participation and limited participation times, athletes feel isolated, abandoned, misunderstood and unsupported by teammates and coaches; (4) during the no participation and limited participation times athletes were concerned with how their coach was perceiving their injury and recovery; and (5) during the limited participation and return to play phases athletes developed doubts about completely overcoming the injury and they remained cautious in preparing to return to play.

The implications of injury that terminates an athletic season are vastly different from those that occur with a career-ending injury. However, there may be something to be learned from what we know of athletes' reactions to career-ending injuries when the medical care team is working with an athlete who has sustained a major injury. Brown (1998) studied four high-level athletes who had sustained career-ending injuries and clarified the process through which the athletes were able to achieve healthy adjustment following their respective injuries. Through the use of grounded theory, he established a model for healthy adjustment following career-ending injury. Brown discovered that the "down period" (a period of low energy, lack of motivation, inactivity and withdrawal) following the injury played a functional role and was a necessary phase that allowed the athlete to come to terms with the significance of the loss. The ability to progress through the down period was affected by the athlete's internal coping resources and social support. An ability to create an adaptive mindset was empowering towards coping with the loss and transition away from sport. Social support

from friends and relatives fostered a "positive regard for the individual, [who] unchanged by the injury, can preserve a sense of belonging while reinforcing feelings of self-worth, independent of involvement in sport" (Brown, 1998, p. 34)

Brown (1998) identified four thematic areas that were key to understanding the injury and successfully recovering psychologically from the injury. Feelings of competence, affiliations with others, the ability to be physically active and a sense of personal satisfaction are lost with a career ending injury. Fostering a healthy adjustment from career-ending injury involves regaining competence in non-sport related areas, and establishing a new sense of belonging that can be fostered and is not contingent upon athletic involvement. Finding a way to incorporate physical activity into the athletes' lifestyle following the injury and rehabilitation is crucial. Finally, the injured athlete must learn to find satisfaction and fulfillment in areas other than competition. These are aspects that can be incorporated into the entire rehabilitation of major athletic injury.

Critical Difference

Five studies were presented to review the qualitative findings pertaining to a major injury. Bearing in mind the limits of these previous studies, this work attempted to deepen the understanding of the psycho-emotional effects of major athletic injury. In this author's study, high performance athletes from various sports and of varying ages were interviewed. Such a heterogeneous group has the experience of major injury as the common denominator.

Prospective interviews that use the athlete as the source of data were utilized. At three points in the rehabilitation process, the athletes were interviewed to assess the psycho-emotional issues that were factors in their injury and rehabilitation experience. Memory decay and diminishment of emotion due to confounding experience and time is a limitation of retrospective interview data. Prospective accounts present the issues in a dynamic state as the

recovery progresses. As well, prospective interviewing promotes prolonged engagement with the study participants and allowed for persistent observation of the participants as they progressed through the rehabilitation of a major athletic injury.

This study involved high performance athletes who had suffered acute, major injury. One could expect that injuries alien to a sport could be associated with different psycho-emotional trauma than injuries common for a sport. This study was conducted with participants who suffered injuries typical for their sport. The age range of the participants was between 20 and 30 years to diminish and limit the potential bias from life experiences. The unique feature of this study was the personal experience and understanding as a formerly injured athlete and as a medical doctor that I was able to bring to the understanding and analysis of the interview data.

Chapter Three:

The Study Design

The emphasis of many previous studies has been to generate theory that will explain and predict psychological reaction to athletic injury (Doyle, Gleeson, & Rees, 1998). Explanation involves interpretation and reasoning; prediction involves forecasting an outcome. This study did not attempt to explain or predict. Rather its' intent was ***to understand the psycho-emotional experience of major injury based on the description of the athletes' experiences with major injuries.*** In this context, understanding refers to grasping the meaning of the experience of major injury, to know that experience well.

Very little is known about the elite athletes' reactions to major injuries. However, a better understanding of these issues enables the medical care team to better serve injured athletes, potentially resulting in a more efficient and expedited return to competition. This study explored the experience of major athletic injury. The medical care team was defined as the group of professionals who work with the athlete to rehabilitate an injury: the sport medicine physician/surgeon, physical therapist, athletic therapist, and sport psychologist.

The Design

This descriptive study utilized qualitative research methods to analyze data obtained from interviews of high-performance athletes who suffered major injuries. The interviews were audio taped and transcribed verbatim. Field notes were taken during the interviews. The field notes and transcripts were inductively analyzed to identify psycho-emotional reactions during the rehabilitation process.

A prospective approach was utilized because it presented the psycho-emotional issues in a dynamic state as the recovery progressed. The complex psycho-emotional process could be examined within the holistic context (Bianco et al., 1999). This approach also enabled the documentation of the range of individual differences in response to injury, and identify moderating and mediating variables to psychoemotional adjustment to major injury.

Participants

Five male and female participants over the age of 20 years, from different sports, and among the patients who presented themselves to the University of Alberta Glen Sather Sport Medicine Clinic for treatment of their injury were formally invited by their attending physician or therapist to participate in this study. The attending physician or therapist provided the study information letter to the participants. The participants volunteered for the study by contacting the researcher. None of the participants were patients of the researcher. Rapport and trust was established by prolonged engagement and persistent observation with the participants through prospective interviews (Lincoln & Guba, 1985). The participants were selected via purposeful sampling (Creswell, 1998). Specifically, athletes who had sustained a major injury were purposefully singled out for inclusion in the study, based upon their intimate knowledge of major athletic injury. In an attempt to determine a true understanding of the psycho-emotional experience of major injury, athletes were selected to provide variation in the demographic characteristics of the study sample, ensuring males and females of varying ages, sports and injuries were selected. Five participants relayed their lived experience. The participants participated voluntarily, under full disclosure of their rights.

The Interview and Interview Guide

The introduction of the interview was my personal story as an athlete with a major injury and my experience as a medical doctor working with athletes who suffer major injuries. The data were collected from prospective interviews using interview techniques described by Kvale (1996) and Doyle (1998). The duration of each interview lasted between 60 and 90 minutes. The interviews were conducted at three predetermined times during each athletes' rehabilitation process, and were conducted at each third of the expected recovery period (early rehabilitation, mid-point rehabilitation and after returning to sport). Table 1 illustrates the injury and interview dates for each participant.

Table 1: Injury and Interview Dates of Participants

Participant	Date of Injury	Expected Date to Return to Sport	Date of 1 Interview	Date of 2 Interview	Date of 3 interview
A	25/10/02	25/11/02	13/09/02	29/10/02	25/11/02[a] 15/02/03
B	06/05/02[b]	31/03/03	13/09/02	22/12/02	31/04/03
C	31/08/02	19/10/02	17/09/02	08/10/02	29/10/02
D	24/08/02[b]	01/04/03	05/10/02	22/12/02	21/04/03
E	01/02/03	15/04/03	16/02/03	18/03/04	17/04/03

[A] Participant A suffered an unexpected setback to her recovery. The first three interviews were conducted according to the initial expectations for her recovery, and a fourth interview was conducted after she was eventually returned to sport.
[b] Participant B and D experienced a delay in time from their initial injury until their surgical interventions. The time of rehabilitation was taken as the time for rehabilitation from surgery.

The interview questions were developed using the model of psychological response to injury suggested by Rose and Jevne (1993). This model was selected based on the clinical relevance and applicability that the model appears to have. As a medical doctor practicing sport medicine, the findings of Rose and Jevne are in keeping with the behavior and attitudes I see in the patients I work with. The interview guide was divided into the following sections: (a) getting injured; (b) acknowledging the injury; (c) dealing with the impact of injury; and (d) achieving physical and psychological recovery. The interview guide questions are listed in Appendix 1. The demographic questionnaire is listed in Appendix 2.

Each interview was audio taped and transcribed verbatim. The resulting text was provided to each participant for his/her review and adjustments to ideas or text accuracy prior to the final analysis of the data. Analysis of the data was ongoing during the verbal discourse of the interview and was completed from the approved transcript.

Data Analysis

The data were inductively content analyzed using global analysis, thematic coding and open coding as outlined by Flick (1998), and Cote, Salmela, Baria, and Russell (1993). The global analysis provided an overview of the thematic range of the text. Key words were noted and central concepts identified and tabulated. Thematic coding provided a deeper analysis of the data, grounding the concepts in the empirical data. Open coding further expressed the data as concepts using *in vivo* codes (codes taken from the participants' expressions) to classify the participants' units of meaning. Analysis was carried out by this author, and proceeded from specific to general themes. Analysis was ongoing throughout the interview, and refinements were made to the data from the transcripts. Following the final analysis of the data, suggestions for the medical care team were proposed to optimize the athletes' experiences with injury and rehabilitation.

"Validity [of qualitative research] has to do with description and explanation and whether or not the explanation fits the description" (Janesick, 2000, p. 393). The "holy trinity" of quantitative research (generalizability, validity and reliability) has yielded to more descriptive, less structured assessment in qualitative research (Sparkes, 1998). The tradition of validity of findings in this study were assessed with multiple methods. First, thick description was sought. The derivation of the codes and themes, decision criteria and data manipulation were explicitly outlined in the reporting of the findings (Cote et al., 1993; Denzin & Lincoln, 2000; Kvale, 2000). As well, investigator triangulation (Denzin & Lincoln, 2000; Flick, 1998) was employed. "Triangulation [is] the process of using multiple perceptions to clarify meaning [and verify] the repeatability of an observation or interpretation" (Stake, 2000, p. 443). Two independent researchers with doctorates in philosophy and trained in qualitative research techniques reviewed the coding process. Discussions and communications were held, and consensus of the codes and themes was attained between the researchers prior to making the final analysis and statements. Saturation of data is the point at which further investigation and inquiry fails to provide new information for analysis (Creswell, 1998). In this study, data saturation was reached after 5 participants relayed their experience with major injury. Finally, member checking was employed (Denzin & Lincoln, 2000). The author's final understanding of the experience of major injury was relayed back to the participants. Consensus between the participants and the researcher of the meaning of the experience suggested that the psycho-emotional experience of major injury had been described and understood.

Researcher as an Instrument

Unlike quantitative research, the personal experience and bias of the researcher are to some extent an integral part of a qualitative study. "Qualitative methods take the researcher's

[understanding] of the field ... as an explicit part of knowledge production.... The subjectivities of the researcher and of those being studied are part of the research process" (Flick, 1999, p. 6). In my youth, I was a competitive figure skater, and I sustained a major injury at a critical point in my competitive season. I remember vividly the unpleasant and emotional experience of receiving the diagnosis and necessary treatment from my doctor. I experienced significant difficulties in trying to cope with the limitations to both my training and my lifestyle that were imposed by the injury. When I was able to return to sport, the goals I had for the season and for the development of my skating career had suffered badly. Witnessing the improvement in my peers' performances while I struggled made my experience with injury and rehabilitation more difficult. I found it extremely arduous and frustrating to return to competition and the experience challenged my dedication to the sport.

This and other experiences I had as an injured athlete have most certainly affected and colored my approach to medicine, and my interactions with my athletic patients. My clinical skill and acumen is my greatest strength as a medical doctor, but I believe that my ability to empathize with my patients is a strong asset as well. I strive to understand the impact and meaning that injury has upon the lives of my patients.

After residency training in orthopedic surgery and family medicine, I completed two years of fellowship training in sport medicine. I specialize in sport medicine and I have restricted my practice to the care of athletes for the past 8 years. My clinical sport medicine practice is diverse and varied. My patients range from pediatric to geriatric ages participating at all competitive levels ranging from weekend recreational sport to professional, international, and Olympic competition. At the time of conducting this study, I was the team physician for the Canadian National Women's hockey team, and I was a part of the medical team for Team Canada the FISU (2001, 2003), and Pan-American (2003) multi-sport games. I was the team physician for the University of Alberta Golden Bears football and hockey

teams. Additionally, I provided clinical medical care to all the athletes in the varsity sports programs at the University of Alberta. I believe that the contextual intelligence and tacit knowledge (Sternberg, 1997; Sternberg, Wagner, Williams, & Horvath, 1995; Wagner, 1987) that I have gained by working in the area of athletic injury, rehabilitation and sport medicine over the past 8 years gives me a unique and critical lens through which I can examine the current research.

Chapter 4:

The Results

CaseReports

A brief case report of each of the participants in this study is presented to allow the reader to better understand the athletes, their injuries and the impact these injuries had on the athletes, and to better understand the diversity of participants. This description is garnered from the demographic information provided by the participants, as well as from the stories of the athletes' injury and rehabilitation process. The analysis of the data, which follows, illustrates that despite the uniqueness of each participant, a common experience is found in their psycho-emotional experience to major injury.

Participant P1

P1 was a 25 year old female national team triathlete who had been competing in the sport for 4 years. Late in her season, she was hit by a car while training and sustained a fractured clavicle. Because of the physical injury, she missed important international triathlons in Europe and the opportunity to compete at the World Championships. Despite this, P1 felt the psychological impact of being hit by a car was the greater trauma.

P1 maintained a very positive outlook on her injury because she recognized the accident could have been much more serious than it was. She had a friend who was paralyzed when he was hit by a car while riding his bike, and another friend who had suffered amputations of his lower limbs from a sport climbing injury. P1 realized her good fortune in sustaining a clavicular fracture, and she relied on the more serious injury examples of her friends to help her maintain perspective regarding her injury.

P1 described herself as a very positive, confident, and motivated person. She relied on her good fortune and reminders that her "life is good" to help with the focus of daily rehabilitation and training, and to cope with struggles or set backs.

P1 had a prior history of athletic injury. While she was in university, she was an athletics (track) athlete and suffered stress fractures to her legs. P1 considered this a more significant injury than her fractured clavicle, because the stress fractures imposed more restrictions and exercise avoidance for recovery from the injury. Her current injury was major in terms of the required time she needed to be away from her sport, but there are other forms of exercise and training that she was able to maintain during her current rehabilitation which made this recovery easier than her prior experience.

P1's goal was to participate in the 2004 Olympics. Although upset about losing racing opportunities she was missing subsequent to her injury, P1 was less distressed by the injury because her focus for her year was to gain experience with international racing, rather than on accumulating points for national team placement. She had already won a number of important races, and the goals she had set for herself for the season had been attained prior to the injury. This resulted in less of a feeling of loss from the injury. Her fracture occurred late in the season, and P1 was beginning to feel fatigued in her training. She considered the injury, and the required time for rehabilitation, as a welcome rest from the aggressive training and racing schedule.

P1 had concerns for a loss in her fitness and fears for gaining weight during the time of her rehabilitation because of the reduction in her activity level. However, she was able to run and bike early in her rehabilitation without much difficulty and she was able to maintain much of her fitness which made the recovery process less stressful.

P1's recovery was somewhat eventful and unexpected for her. After 6 weeks, when she expected to return to swimming and progress her training, there was concern that the fracture

was not healing. A second and third medical opinion was not able to definitively alter her treatment and recovery. The possibility of a surgical intervention to ensure healing was raised. This varying opinion frustrated and confused P1, making her recovery process more difficult as time progressed.

With the concern for the fracture not healing, P1 was restricted further in the training she had been doing and all her activity was reduced with the hope that this would facilitate the healing of the fracture. This period of inactivity was more difficult for her because it deprived her of her sense of being an athlete, and tried her coping resources. She came to anticipate surgery, as she saw this as the means to healing the fracture and progressing back to training. After further follow up and successive x-rays failed to demonstrate healing of the fracture, surgery was planned. However, a repeat x-ray on the day of her surgery indicated healing of the fracture, and the surgery was cancelled. After 20 weeks, P1's fracture was considered to be solidly united and she was able to successfully advance her training and subsequently returned to elite competitive triathlon.

Participant P2

P2 was a female 27 year old graduate studies student who was a member of the national development cycling team and competed on the World Cup circuit. She was a mountain-biker and was injured early in her season when she fell off her bike during a race and sustained a complete tear of her anterior cruciate ligament. Her initial reaction to the injury was denial. She engaged in active self talk aimed at diminishing the severity of the injury and avoiding the feelings of pain. Despite the injury and knowing that it was significant, P2 tried to continue her competitive season, but did badly. The knee pain significantly impaired her ability to train, and her race performance dramatically diminished. Four months after her injury, P2 sought definitive help with her injury and underwent surgical reconstruction of the

ligaments in her knee. Because of the injury, she did poorly in her qualifying races, and did not qualify for the World Championships. In retrospect, she wished that she had undergone the reconstructive surgery sooner after her injury instead of trying to train and compete on the injured knee for the duration of the season.

P2 had previous experience with an ACL injury and reconstruction in her other knee. Despite this, she felt this second ACL tear was still a major injury because it had significantly altered her life and she feared this injury would also alter her ability to return to an elite level of competition.

While P2 had been rehabilitating from the reconstructive surgery, she focused her time and energy into her schooling. P2 had fears that she would become more enamored with her education and would forego her athletic career for her scholarly pursuits. However, she also harbored fears that if she did not return to high performance sport and chase her dreams, that she would never know how well she could have done and how far mountain biking could have taken her.

P2's coping skills with regard to injury had been avoidance and denial until the impact of the injury became too limiting. P2 described herself as determined, highly energetic and driven, and she did not recognize or acknowledge her limits. She stressed about staying organized and on top of things, but coped by "taking a step back". She tried to learn from prior experiences with rehabilitation, and tried to be more compliant and realistic with goal setting with the current injury and rehabilitation.

P2's early recovery and rehabilitation progressed well and she was able to return to sport specific training earlier than initially expected. However, four months after the reconstructive surgery, she sustained a setback when she re-injured the knee and required a second surgical intervention. While she looked forward to this second surgery as the means to resolving her problem and progressing in her rehabilitation and training, she was discouraged by the two

month delay for surgery that the medical system imposed upon her. This was very difficult for P2 to cope with and she considered discontinuing competitive sport. To fill her time, P2 had begun teaching at a University and she found academics were fulfilling and required a great deal of time. After her setback and second surgery, she lost a sponsor. This unexpected development strained her resolve to return to competitive cycling and again she considered discontinuing competitive cycling.

Fortunately, her recovery from the second operative procedure was rapid and uneventful and she quickly regained her training and fitness level, and was able to continue to progress her rehabilitation from the ligament reconstruction. Eight months after her primary surgery, she had returned to sport specific training and competitive cycling.

Participant P3

P3 was a 24 year old, right hand dominant male football player, who, having finished a junior career, advanced to play University football. He had played football for 9 years. During the first play of the first game of his University career, P3 sustained a dislocation of his right elbow. At the time of his injury, P3 was advised this would require approximately 6-8 weeks of rehabilitation. However, his team's season was only 8 weeks long and they didn't make the playoffs, so at the time of injury, this was potentially a season ending injury. His dislocated elbow required him to miss 6 weeks of football, but he was able to return to play the last game of the season.

P3 had a long prior history of athletic injury, including a season ending injury, and he was familiar with the extended time needed to recover from some injuries. He felt that injury was a "part of the game" in football, and that rehabilitation from injury was necessary as well. P3 planed his own physical training, and he felt he knew his body and the limits he could push.

P3 described himself as a conservative, polite and considerate person. He felt he was outgoing, friendly and personable, and his self-image is that of a football player. He has gone to great lengths throughout his career to play football, against his parents' wishes. His determination to play football has guided his training and skill development and has resulted in his being a "starter" for most of his career. He has been consistently praised for his work ethic, and sets difficult, but attainable goals for himself that continue to challenge his abilities.

P3 came to his new team "[intending] to contribute" and "[wanting] to make an impact". P3 did not aspire to a professional football career, but if the opportunity arose, he would be thankful for the experience. He saw team sport and football as important for the development of discipline and fostering skills that would be needed in the workplace and communicating with others. Sport, in general, and football, in particular, played an important role in his lifestyle, fitness and health pursuits.

While P3 was upset by the necessary time away from sport and training, he was surprised by the imposition onto his non-sporting life that the injury caused. Because of the pain and instability of the elbow joint of his dominant upper limb, P3 experienced significant difficulties with activities of daily living (i.e., bathing, dressing, eating) and he was unable to carry out the duties of his employment for a number of weeks while the elbow recovered.

P3's rehabilitation was uneventful and progressed more rapidly than was expected. The pain he experienced with the dislocation settled quickly, but he complained the feeling of stability of the joint lagged behind. He worked diligently at regaining the range of motion to the elbow, and rebuilding the strength in the arm. He was able to return to football six weeks after his injury, for the last week of the season.

Participant 4

P4 was a 27 year old male water ski jumper. He was ranked in the top five in Canada. He was injured in a dramatic crash at the Canadian National championships, where he sustained a tear of his anterior cruciate ligament with a chip fracture to the bone, a ruptured tympanic membrane (ear drum) and multiple contusions. His injury occurred late in his competitive season, and interrupted his off-season competitive sporting endeavors.

P4 described himself as laid back. He related that he did not get upset very often, except in relation to athletics. It is sport which brought out his competitive nature. The only frustration and upset he felt was in a sporting venue, where he did not like to lose. He felt that sport "[brought] out that edgy side" of his personality.

P4 had been fortunate in his career and had not sustained any significant injuries prior to this current ligament tear. However, he had family members who had suffered injuries similar to his, and he had observed their time of injury, surgery and rehabilitation, so he believed he had an understanding of the necessary recovery he would require. In the past, P4 had difficulty with depression. He felt that in his youth, he "took everything to heart" and viewed most things in a negative manner. With time, introspection and counseling, he came to realize that he was fortunate and did not have cause to be feeling badly. P4 made a conscious choice to "not let things bother [him]". He felt that at the time of his injury, he did not have stress in his life, and this outlook helped him to cope with his injury and the required rehabilitation.

At the time of his accident, P4 was unaware of the extent of his injuries. P4 was injured on his first jump of the day. He felt he did not have sufficient time to mentally prepare before jumping, and he mistimed his first approach to the jump ramp. His legs were "taken out from under [him]" and he was taken over the ramp by the boat, landing hard in the water. He was struggling for breath after the crash, and was extricated from the water with spinal

precautions, and taken to the medical station where he was examined. Initially, P4 was complaining of chest pain and thought he had simply bruised ribs. He wanted to return to the water for his second and third attempts at the jump, but he was prohibited by the attending physician. P4 had completely ruptured his anterior cruciate ligament, he sustained a bone chip in the knee, bruised ribs and a ruptured tympanic membrane. P4 was most upset by the fact that his family and friends had to see his poor jump and crash, and that he could not return to the water to try and correct his jump. He felt he had a good chance of placing in the top three in the National competition. Because his knee was not initially sore, and he felt he was only "winded" and suffering from bruises, he believed he could return to the competition. However, his ear pain increased sufficiently that P4 was beginning to consider his good fortunes in only suffering the injuries he did. He related that this was the worst crash he had ever suffered, and he was lucky to only tear his knee ligament, tear his ear drum and bruise ribs.

P4 had undergone surgical reconstruction of his anterior cruciate ligament. His rehabilitation was uneventful and he has progressed well. He was been able to return to all of his sporting endeavors, save for his water ski jumping. His surgeon felt it was best if he did not jump and compete until his next season following his surgical reconstruction. P4 was unhappy with this advice. His father and brother had sustained a similar injury and returned to ski jumping in the successive season, without any difficulty. P4 felt that he too, could jump the year following his surgery, and was expecting that he would act against medical advice and water ski jump in his upcoming season. Despite being back to all other sports and activities, that he must jump to feel like he had fully returned to high level competitive sport.

Participant P5

P5 is a 22 year old male veteran varsity basketball player. He had been playing basketball for 12 years. In the late season, he fell on his outstretched hand during a game and sustained a fracture of his left scaphoid (wrist). The fracture was treated by cast immobalization, requiring him to miss the last six weeks of his season, including the National championships.

P5 described himself as easy going, a hard worker and he liked to excel at things he did. He "[took] things as they [came]" but could get emotional at times. He tended to keep things to himself, and did not express his thoughts or emotions when upset or stressed. He felt that he tended to over-analyze situations and dwell on things when he was stressed, but he did have a network of friends and family that he talked to when he felt he needed to verbalize his feelings and stress.

P5's education and athletic pursuits had led him to move from his home province. Rather than being invited to his University basketball team try-outs, P5 was a "walk-on" but he impressed the coaching staff and won a place on the team. At the beginning of the season, he was a "starter", however P5 felt he lost this position due to a series of injuries. He badly sprained his ankle in early season play, and then later badly sprained his right wrist. He was trying to play with his injuries, and felt that he fractured the left scaphoid because he was protecting the sore right wrist when he fell.

P5 had a difficult season with his injuries. He felt that the coach did not believe he was injured, and did not understand that he was trying to play, despite his injuries. P5 was reluctant to advise his training staff and coaches of his injuries for fear of their disbelief or disdain. When he fractured his wrist and needed a cast, he was relieved because he felt this would validate his injury to his coach, and he wouldn't have to continue to play with pain. The pain from the fracture initially caused P5 great discomfort and negatively affected his

mood and desires. However, as the pain settled and the fracture healing progressed, P5's mood and initiative reversed and became more positive.

P5 was fortunate to have the bone heal without difficulty or the need for a surgical intervention. However, his self-perception of his body's ability to heal was erroneous and caused him to have false hopes for the discontinuation of the cast and return to sport at an earlier date than he was advised by his physician. P5 believes this perception arose because he was ill-informed by his physicians regarding the recovery and rehabilitation requirements. He felt he was not able to ask questions of his physicians which would have allowed him to gain a better understanding of the nature of his injury and the required rehabilitation time.

Much of P5's difficulties stemmed from his instinct to keep things to himself rather than talk about his thoughts, feelings and fears. His perception of his coach's lack of concern for his injuries and pain caused him great psychological stress. He did not feel he could admit to experiencing pain and therefore he suffered unnecessarily during the period of fracture healing. P5 recognized that the decline in mood he experienced was related, in part, to the pain, and had he asked for analgesia, some of the psycho-emotional difficulty he experienced during his rehabilitation would have been minimized.

The Data Analysis

The data was inductively analyzed, from specific to general themes. This produced 603 raw data themes. Raw data themes from a minimum of two participants were required to establish a lower order theme. The material is presented at the three prospective time periods of the rehabilitation process, early rehabilitation, mid-rehabilitation, and return-to-sport. For this study, the time in rehabilitation described as 'return-to-sport' is the end of the physical rehabilitation period when the athlete is allowed to return to full sport specific training.

Figures 3, 4, and 5 provide an overview of the results of the analysis. Further elaboration of each item in the descriptive model follows.

Early Rehabilitation Period

The early rehabilitation period was the first one third of the expected recovery time for the injury. During this time, the athletes experienced psycho-emotional responses that could be attributed to factors that were internal and external to the athlete. Aspects of sport and performance psychology, and especially mental skills training can significantly and positively modify factors that are internal to the athlete. External factors are beyond the direct control of the athlete and are therefore un-modifiable.

Internal, Modifiable Factors

Self Talk

The category of internal, modifiable factors was derived from the sub-categories of self talk, emotions, sense of loss, somatic complaints, body image concerns, and self discovery. The three lower order themes of the 'suck-it-up' phenomena, rationalizing the injury and self reliance condensed to make the sub-category of self talk. These themes refer to the athletes' internal dialogue with themselves in order to improve coping with the injury and the requisite rehabilitation. The 'suck-it-up' phenomenon refers to the ability of the athlete to persevere despite the obstacles that are placed in his/her way. P4 illustrates, "It could have been avoided, but I have done it so I am going to work my way out of it," and "... all that I could think of was, 'you're fine, get your wind back and get out there and go again." P3 relates, "I have had injuries that have hampered my playing ability but I always fought through them and I always played through pain." P5 "just figured, you know, I will just play through it."

Figure 3: Early Rehabilitation Themes

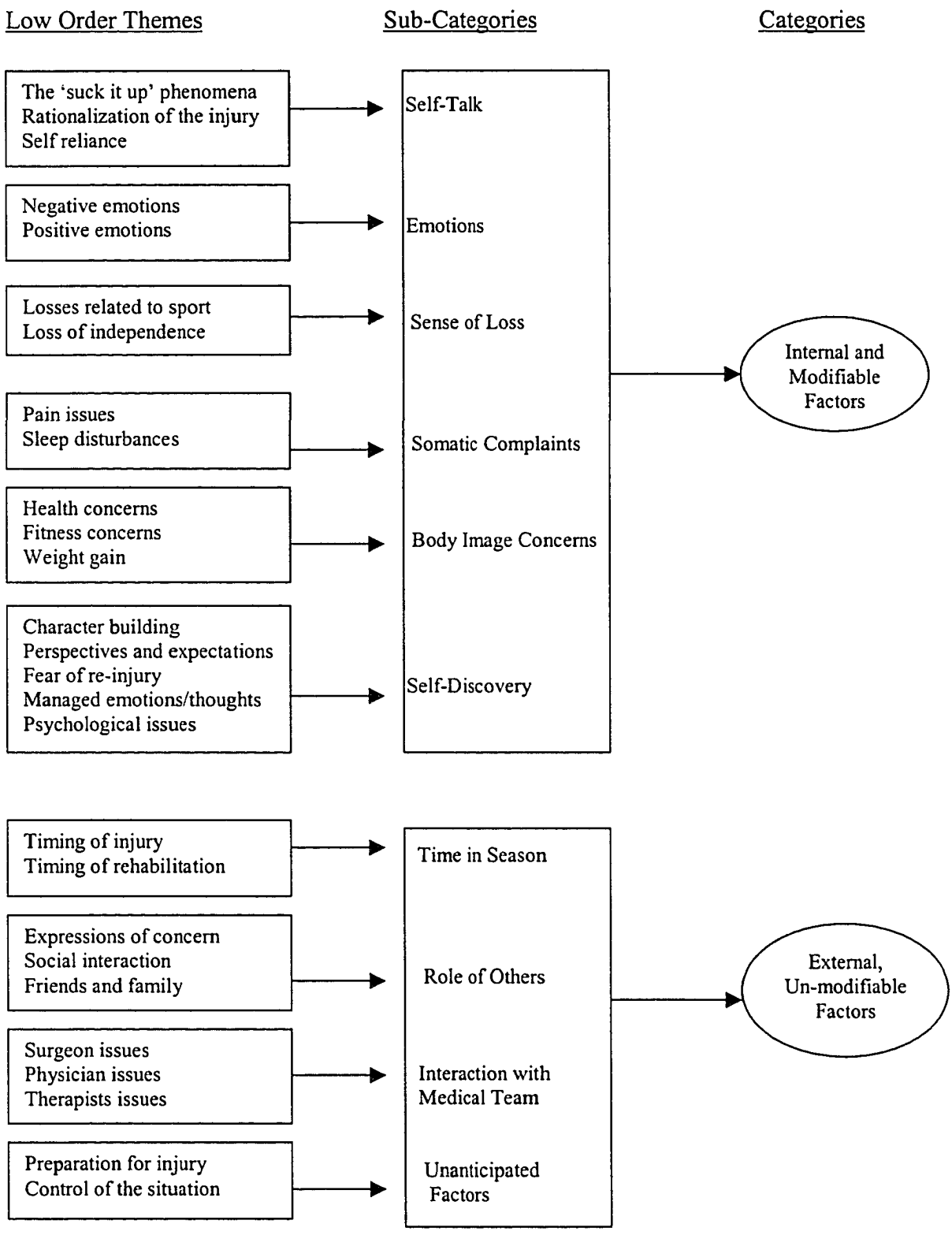


Figure 4: Mid-Rehabilitation Themes

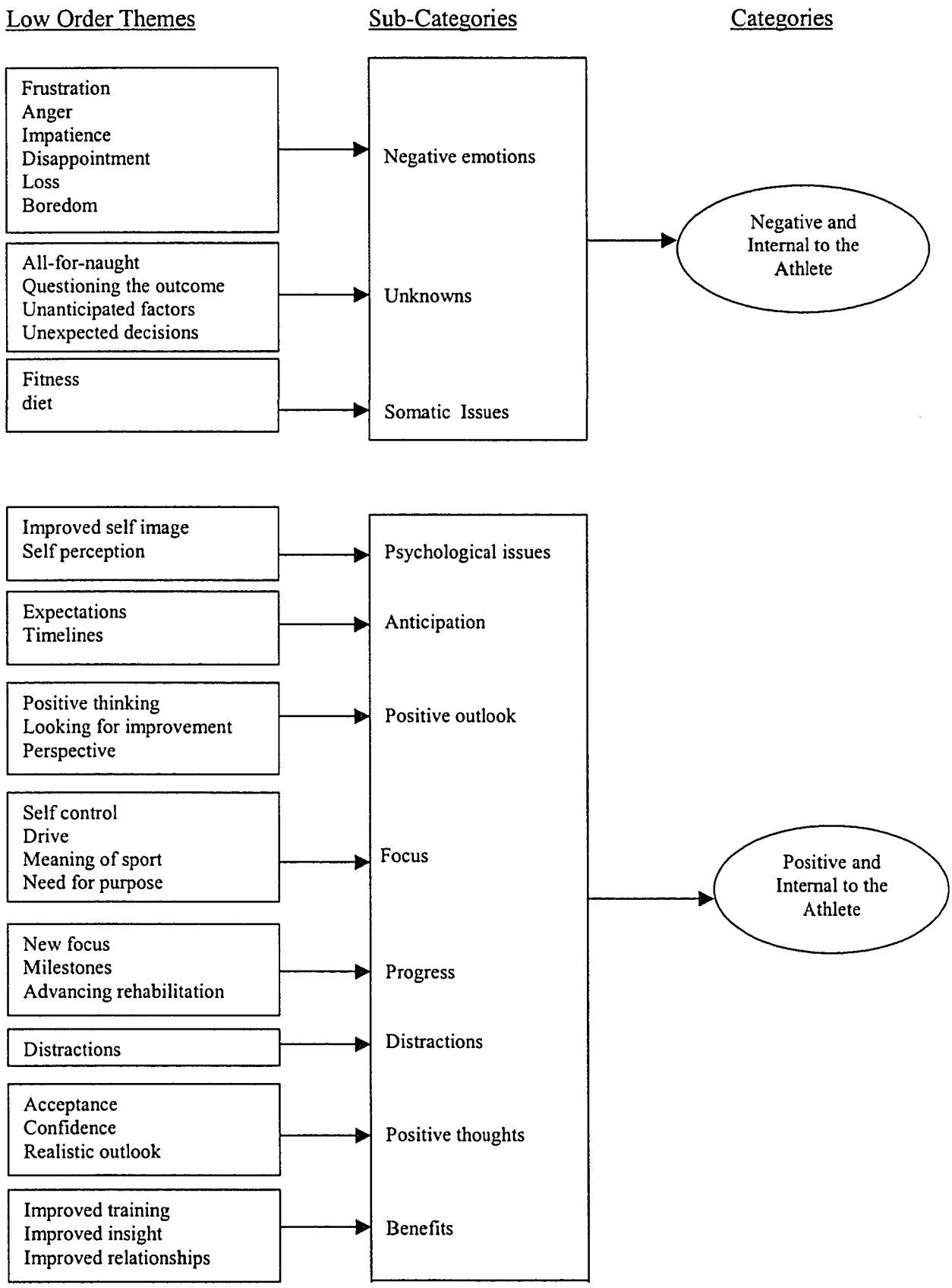


Figure 4: Mid-Rehabilitation Themes - Continued

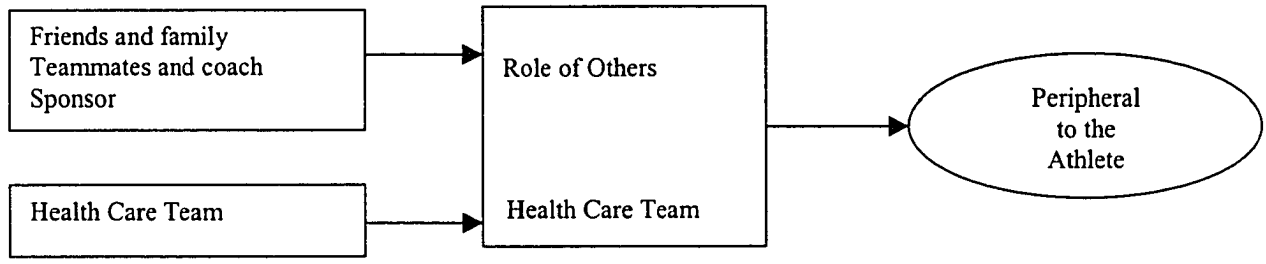
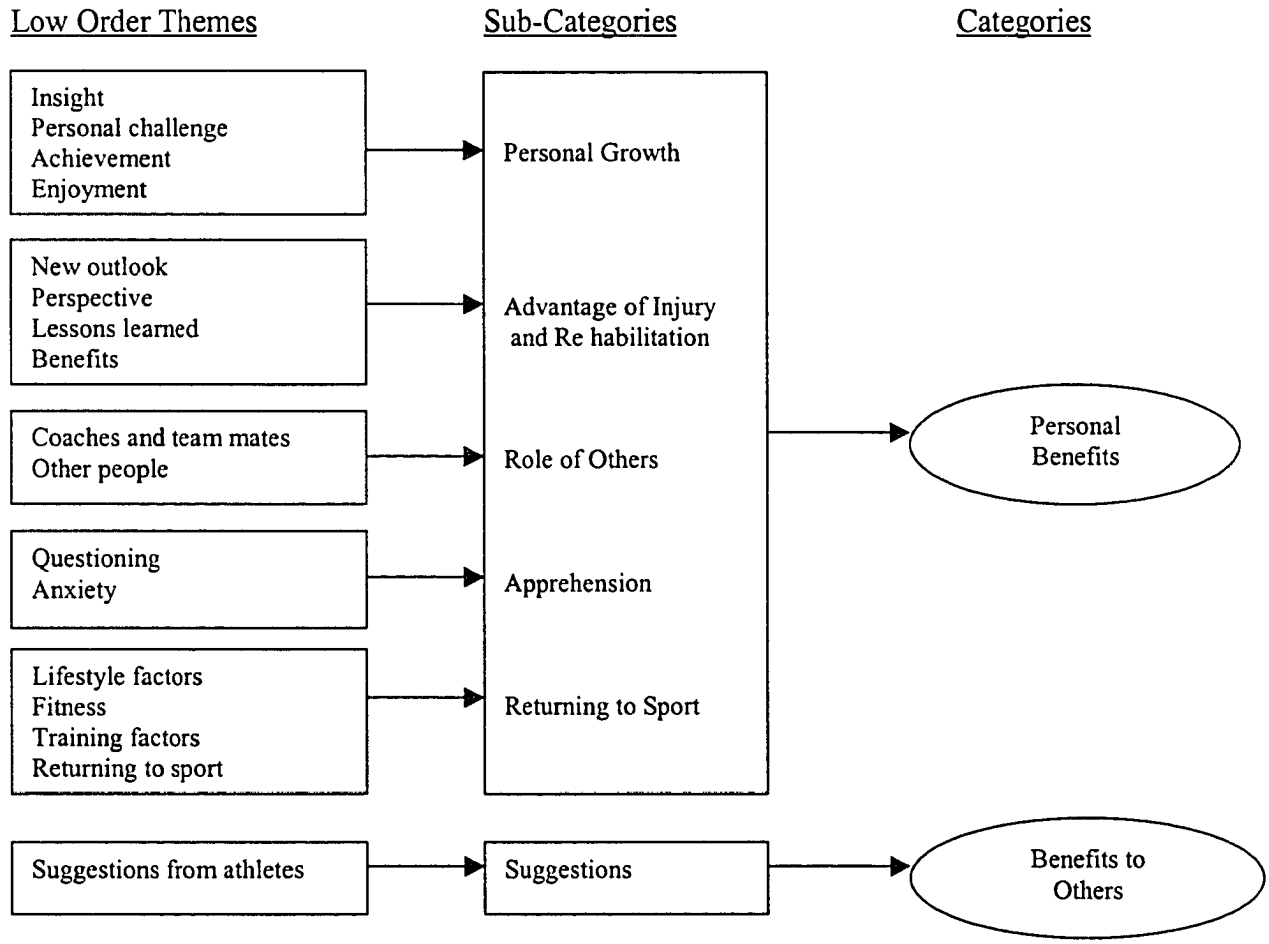


Figure 5: Return to Sport Themes



In the early rehabilitation period, rationalizing the injury is a common coping mechanism. P1 illustrates:

> There was a small part of me also thinking I really need a break anyway. I finally get to rest. So, I think, maybe had this happened earlier in the season it would have been a lot more devastating and harder to deal with but because I was, in my head kind of ready for a break. I was mentally struggling, trying to keep going and keep motivated and ready to compete. ... And so when it happened, I was like, "I get a break, finally, I get to lie down".

And P4 relates a common idea or rationalizing the injury:

> I know how far I was going in practice, and I am very consistent and I know how far, I know what would have happened if I would have landed the jump. So in my mind, I kind of, you know, it leaves a bit of peace of mind that I know if I would have been smart and let go and landed the next jump, then I would have been fine.

The athletes in this study demonstrated pride in their ability to rely on themselves for their recovery. This self reliance is demonstrated by P4, "I am doing my best now not to let it happen again." And P2 indicates, "I thought, okay, maybe I will keep going, keep going, you can do it, it's just a little bit further." P5 "just thinks over things so much, what happened, how I could have changed it... what I can do in the future."

Emotions

Consistent with the findings of Meyers, Bourgeois, Stewart and LeUnes (1992), this study found that injured athletes in the early rehabilitation period experienced mainly negative emotions, however some positive emotions were expressed as well. P1 experienced emotions atypical for her during the early part of her rehabilitation, "I was just so angry. It was emotions beyond what I had before, totally outside myself, so upset, so upset." She reported

she was, "... so mad that I was yelling at the woman and that was totally not in my character to do that." Similarly, P4 found:

> There were two hard parts. The first was when the doctor said I couldn't go out anymore. That was hard. The second was to see my mom crying, looking at me crying – that was the worst. And then my Godson was there too, and he had come up to me and he had given me the Band-aid on his knee, and I kind of lost it there. That was really emotional for me.

Doubt, fear and denial were common in the early rehabilitation period.

> P2: Am I going to be able to come back to where I was before, and am I going to even want to come back to where I was before, when I can? ... I am afraid I am not going to be as good as I was. ... I am afraid that I will really like school and that I will be glad to be doing what I am doing and not have the drive or commitment

P4 relates, "I am very scared to see what is going to happen." For P2, fear lead to frustrations with the early rehabilitation.

> P2: "It was very frustrating to see people in the race pass me that I had never seen before and I did not even know competed in my class. ... So [there was] a lot of frustration that then leads to tears and then leads to [questioning] why you are upset about this.

P4 "always liked to look at things in terms of always moving forward, always progressing. And then getting an injury like this sets you back and I think that is one of the biggest frustrations." P3 too experienced frustration, "the grand finale of the biggest tournament in Canada, and I got to wobble in there late and leave early, so that was pretty frustrating," and "mostly just frustration that I am missing out."

The injury, the rehabilitation and the effect on athletic performance left feelings of failure. P2:

> To not be able to tell my body, 'okay, go', and then I would wait for the reaction for me to pick it up and there would be nothing, nothing at all. So that was really hard. I felt like a failure. I felt like, 'what am I doing here, I'm wasting my money, I am wasting my time.'

Denial was a predominant emotional coping mechanism early in the rehabilitation period. P2:

> I had trained so hard. I moved to X to train full time and I trained so hard over the winter, all through those wet, rainy rides only to be injured in May. That is something I could not admit to myself. ... I was just thinking of the here and now, in this here and now I cannot be injured. I am not going to accept my feelings, whether they are bad or good about this injury, I am just going to keep plugging away. ... There was no possible way that I could have trained at this high a level and become injured at the start of the season. There was just now way that that could have happened to me.

Depression was another common emotion expressed by the injured athletes. P2 said:

> Normally I will get excited about little things and now my emotions are kind of level and I do not know if that was just a way of coping with the state I was in or it was just that I was kind of mildly depressed through the whole summer.

Similarly, P5 expressed:

> The first couple of weeks I would mope around and just sleep. I guess I had no desires. I really did not want to do well – like, I didn't care about school. I didn't care about sports. With my girlfriend, kind of, things, I don't know, things were down there too.

Despite these negative emotions, positive feelings were expressed during the early rehabilitation period. P3 believed "some of the positivity comes from the hope that you can come back and play this season, not next year." P4 accepted the injury, "there is no way I am

playing this year, so why sit at home and sulk about it." In the early period, P5 "was glad that I am not playing."

Sense of Loss

A sense of loss was predominant in the early part of the rehabilitation process. This loss is related to sport as well as to independence. P3 was "in the best shape that I had ever been in preparing for this season," and this loss of sport ability made him feel "it was all for not because I know that when my elbow is good enough to return to play, I will not be as strong." P4 illustrates:

> Before, I really didn't take care of my body the way I do at this point in my life. I worked out a little bit here and there, but not like I did leading up to this competition. I have never worked as hard before a competition as I have for this one. And most people don't get better as they get older – it is the other way around. So for me, I was getting better.

P5 remarked, "it is hard to sit back and watch them do the things you want to do." Because of his injury, P4 missed his off-season training. "It is a huge part of my life... I mean, that is just part of my life and this is something that I am totally missing." Losing the standing in the sport is difficult. P4 related, "when I look back at it and I look at the results, ... I would have got top three in Canada if I would have landed one jump." And P2 said, "It took me the season of watching my performance digress to come to realize how severe it was." Losing the opportunity that sport provides was a difficult challenge for P1: "I'm not going to Europe, I'm not doing this race."

Sport participation provides a significant social support system to athletes. Injury and rehabilitation removes the athlete from this social support and makes the initial period of rehabilitation more difficult. P2 remarked, "you become very isolated and you feel very alone." And P1 also experienced loss related to her social supports in sport:

The most emotional part was leaving my coach because we left the same day. He was going to Europe and I was going to X, so that was really hard parting from him. I just wanted to go on this trip, so his leaving was hard because he was my support for the past couple of days and he was leaving.

A difficult adjustment for elite athletes was the loss of independence that the injury and rehabilitation inflicted upon them.

P4: I still felt fairly useless because I really couldn't do things. I mean, I could get up and make a sandwich, but it took forever... it was most excruciatingly frustrating time ever, but it was better than having somebody else do it for me.

P5: I was kind of limited in the things I could do. ... Just the little things, I couldn't shower, everything was awkward.... I couldn't pick up my bag... I couldn't open a jar... I had to get my room mate to help me do everything.

P2: I had to slow everything down in my life. ... I am experiencing a lot of frustration in myself, in just being really really slow and not being able to do the things that I want to do, even grocery shop. Not being able to push the cart for grocery shopping or to get in and out of my car was so hard.

P1: I didn't know about the daily stuff. I could not drive and my friend was driving me everywhere and it was driving me nuts because being the passenger in you own car is so awful. And you feel bad that someone has to help you all the time and you are depending on other people. I think as an athlete that a lot of us pride ourselves on being independent and strong. With injury you lose a part of yourself. ... It is hard to

> ask people to help you do things. You know, it's not just, 'can you carry this for me?', it's 'can you carry this for me, and can you do this, and can you do this?'

> P3: In terms of my everyday life, I saw [my injury] as more of an inconvenience just because it took more time to shower. It took more time to cook things. I just always had to think about it because you have to guard it and I am right hand dominant and it is my right elbow so I have to learn to do things with my left hand.

Somatic Complaints

Somatic complaints experienced by athletes in the early rehabilitation period related to pain and physical symptoms, and sleep disturbances. P5 said:

> I didn't really have the urge to play because it was hurting so much. [When the pain started to settle] I was in a better mood. ... The first week or two, I didn't eat very much because I had a loss of appetite.

P4 reported "all I can remember from that whole experience was the absolute worst pain in my life." And he commented, "I didn't sleep very much. My sleep was very scattered, it was an hour here, and hour there if I could get it in."

Body Image Concerns

Health concerns, fitness and weight gain were important lower order themes that comprise the subcategory of body image concerns. P3 relates, "athletics has always been a big part of my life and I emphasize the lifestyle. I have always put a lot of priority on staying healthy and being fit, and football to me, is a part of that." P2 said

> Just looking at her all sweaty and thinking that I have not sweat like that except because I have been in pain. Never in my life have I felt this deconditioned. ... In my mind I do not feel like an athlete right know. Right now I am just focusing on rehab.

P1 stated, "you always want to feel like you have done some kind of a workout. ... As athletes we need to be able to do something to feel like you are still staying fit." Body image and weight gain was a real concern for these elite athletes. "I really don't want to come back fat and unfit. That is scary to me to not be able to exercise and have a release of energy," P2 recounted. And P1 echos that thought:

> I want to stay fit and I am worried about not losing my fitness and I think for women it is harder. I do not want to get fat. I don't want my body to change the way it looks.

Self Discovery

Self-discovery of the athletes in this study was encouraged through the character building, realistic perspectives and expectations, fear of re-injury, managing emotions and thoughts and considering psychological issues and concerns. P2 used her injury and rehabilitation to redefine for herself who she is as a person:

> I think I have had to kind of refine myself as a person because for the longest time I have just been an athlete and I did not have this summer [competing] like I normally have, the wins that I normally experienced to make me feel really good about myself. ... A key motivator for why I participate is setting goals and then creating feelings of success once I accomplish them and so I do not want to just swap [cycling] to make school the only thing in my life. ... The fall in my performance level definitely changed [my perspective] because I knew I was not as strong as I thought I was.

P3 used his injury and rehabilitation period to reaffirm his goals. "It doesn't change the fact that I still want to make an impact. It doesn't change the fact that I still want to contribute. This injury, if anything, has motivated me more." P4 reflected upon his injury and the events leading up to it, to learn from his mistake:

> Any other time, any other place, any other tournament, without all those people here, there is no way I would have ridden over that jump. ... I have always been a safe

> jumper and to crash like that was difficult in front of the other competitors who, you know, obviously have never seen me do that before. It was, kinda, I wouldn't say embarrassing, but almost uncharacteristic and I kinda felt out of my mould when it happened.

P3 commented on the importance of his sport on defining his character. "Because I have taken on my own training, I think this has given me the confidence to believe in my abilities." And P2 reiterates that thought, "If I never give myself the chance to chase my dreams in a fair playing field, then I will never know how I could have done." And P1 stated, "my goals I achieve early in the season,... it was greater than what I had expected." "When [the pain] started to go away then I knew I could start playing. I just wanted to get back out there. .. Basketball is what I love to do. I love to practice by myself," recounts P5.

Maintaining realistic perspectives and expectations helped this group of elite athletes cope with their major injury and necessary rehabilitation. P5 said, "I know it is broke, so I really can't do anything about it. ... I can't change it, I can only change the future." P4 knew that "I am very lucky to be even walking because I could have broken my neck or spine. ... If I am getting away with a knee, ribs and ear drum, you know that I am fairly lucky." He approached his rehabilitation as "what I need to do to be ready for next year. ... Basically going to therapy is working out, in a different sort of fashion." P4 related that his brother had sustained a similar knee injury to his, and "he came back twice as strong." He went on to state:

> My life is good, I don't need to worry about all these things I worry about. ... I realized that the things that were bothering me were really quite minimal and that if I looked at other people in this world that are having things happen to them that are absolutely brutal, I just realized that my life is pretty good.

P3 maintained his perspective by keeping sight of the progress he made with his recovery:

> Right away, within the first week, I started to really become optimistic just because I had seen a lot of improvement in the arm in terms of range of motion and strength. It was nowhere good but it had just come a long way. ... The only thing that I can do, really, is do my rehab and hope the ligaments tighten up real good and the swelling gets out of the joint and the fracture does not complicate anything, and as long as I treat it right, and go by how the rehab is prescribed, then I will be back.

P2 concentrated on shifting her perspective and expectations away from herself as an athlete to that of herself as person with other interests and goals:

> I need to not refer to me as a cyclist, but me as a person, [and concentrate on] being able to ride that bike for however long just to be able to make my quads and hamstrings contract so I can walk properly. ... I focus on being active again and being able to do what I need to do. ... For the most part, I feel pretty upbeat and feeling like I am lucky to have a new chance and when this knee is done it is going to be brand new and it is going to be stronger than ever and I am going to be able to show everyone that I am capable of more than what I did [this season].

She goes on to advise:

> I am trying to look at myself as having a new start, starting from zero, as in not really having a leg and not having muscle in the leg, and building from there. If I go backwards from where I was [before I was injured] then everything I do seems trivial, whereas if I start from zero, like a stick and work towards having a leg, then the little small steps that I take are more a mental thing I can focus on.

Beginning almost from the time she was injured, P1 was conscious of maintaining perspective in terms of her injury. "The ambulance driver said that I was the best case that he had ever seen of people that he has picked up on that road. He had seen people die, so, you know, it

puts it into perspective." P1 also maintained her perspective by focusing on the fortunate outcome of the accident that caused her injury:

> I know I was really lucky. I know the car was going very fast, and it could have been a lot worse situation. As well, a friend of mine was in an accident just bike riding, was not hit by anything, and he is now paralyzed so I am constantly thinking of him and knowing that I am just so lucky to be walking around right now.

Fear of re-injury is an extremely common emotion among injured elite athletes. P3 said:

> 'What am I going to do when I return to play?' has been extremely dominant. I think about it all day, everyday. 'When I come back, how am I going to play?' There was a question of how am I going to perform. I think that I am pretty sure that I will be guarding [my elbow]. The thought of re-injury will loom but I do not think it will be necessarily based on going back too early. I think that is a natural way to think after injuring something because you do not ever want it to happen again. You do not ever want to have to go through waiting six hours at the hospital or in pain. You do not want to go through the whole process again because it is another set back.

Controlling, or managing their emotions was an important aspect of the self-realization that these athletes discovered. P5 realized "I have a huge affect on the things that I think." Similarly, P3 realized "I do not see the point of beating yourself up about it. I was upset for a couple of days after I injured myself, but I think attempting to be optimistic... reduces the amount of stress in your life." P1 advises, "you can't let [athletes] feel sorry for themselves, because it just snowballs." She also relates the importance of family and friends in helping to control her emotions, "If [my parents] had been all weepy and fawning all over me, I think I probably would have felt sorry for myself more and been more emotional and more upset." She goes on to say, "My coach is not a really emotional person and he did not let me get into an emotional state. So I think that really helped me to not even let myself get into that space."

The injury and required rehabilitation also helped P1 to appreciate more the opportunity and abilities that she has:

> When we are having struggles in sport, and there are always times during the year, then I kind of question, 'do I generally love and appreciate what I am doing here?' And some days I kind of wonder if I do. But since this has happened to me, I have not had a day where I am feeling sorry for myself and not realizing and actually appreciating the life that I have.

P4 advises, "my friends think that I am a fairly positive person." He goes on to say, "there is a lot of things that happened that are terrible, but there is a lot of things that have happened that are really good."

Each athlete had issues and concerns in the early part of their rehabilitation about the psychological aspects of the injury and recovery period. P1 felt "getting hit by a car was so much bigger psychologically than what actually happened physically." She said, "it was a traumatic injury and the physical part is pretty minor, but the actual event in my life is pretty big." P2 "saw the injury as major because it really changed my life." She was buoyed when her surgeon "reaffirmed that my knee was hurt. I was thinking, 'has my season been bad just because psychologically I have been bad, or because I am deconditioned or am just a bad cyclist, or is there something really wrong with me?'" P3 realized that "rehab is as much psychological as it is physical in terms of actually getting back to play." On his own, P3 has learned and utilized the technique of visualization as a psychological training tool for rehabilitation:

> I do a lot of visualization. When I think about it, you can almost call it day dreaming. When I think about football it evokes a lot of emotion in me. I see myself blocking just like the guy on TV that is when all of these emotions just come out and that is when I progress. Then I would go through my plays and I would picture what I was

> doing on each play and if the image in my mind was not good enough, I would re-do it.

P4 also comments on the replay and visualization of his injury and the psychological effects of this:

> It is going to be a lot different this time because usually I can crash, take a couple of weeks off and go back out. This time it is crash, think about it for eight months and then try to go back out.

P5 also feels that "injuries, I think, subconsciously is going to affect the way I act, the way I kind of treat the whole situation. So addressing that [in rehabilitation], the subconscious level, the mind set, would help."

External, Un-modifiable Factors

A number of factors affected the psycho-emotional experience of major injury of these elite athletes. Time in season, the roles of others, the interaction with the health care team and other unanticipated factors played a role in the early period of the rehabilitation.

Time in Season

P1's rehabilitation was made easier because she was removed from the daily routine of training with her team mates:

> Rehabilitation is easier here because right now there are hardly any athletes around. They are racing. ... I do not have to see them training and be thinking, 'oh, wow, look at that, they are lucky to be able to do that.' ...And it is nice outside so there is a lot of stuff to do, whereas lets say in February, when we are just training and not doing a lot of racing and every other athlete was going training every single day and I was having to do something different, it would probably be a little more difficult to deal with.

P4 also felt the impact of the time in season on the psychoemotional experience of his injury and rehabilitation. "I think it helped that it was the last tournament of the year. If it was at the start of the year, I would have been pretty choked." P5 had a more difficult time with his injury because of the timing in his season. "This week was the worst because I had to sit there watching our team at Nationals and I knew I could have helped and it would have made a difference." Similarly, P2 "couldn't handle the thought of being injured right at that point in the season."

Role of Others

Other people – family, friends and even strangers – play significant positive and negative roles in the psychoemotional experience of major injury in elite athletes. P2 discovered that:

> People treat me very differently than when I am wearing the brace. Someone will offer to help, or wait with me, or someone said to me the other day, "good job, keep at it, keep at it." Just getting encouragement from strangers is great.

P4 "wanted everyone to know that I was okay. It felt good to see everyone and to thank all the people that dove into the water to help me out. I needed to do that too." Unfortunately, P5's rehabilitation was impaired slightly because of his interaction with his coach:

> When I found out that I broke [my wrist] I was kind of relieved. I knew that I wouldn't have to play through it, because it hurt so bad, and when I found out it was actually a relief. It was like, coach will finally believe that it is a serious injury.

The social aspect of sport and the support from friends and family can not be over emphasized in the rehabilitation process. P2 stated:

> [My teammates gave] me the support and encouragement that I needed to stay in sport or stay actively involved in it. So even if I can't ride with the group, I can do some of the core stability exercises with them, or do some of the cross training if we have pool

> sessions. Everybody knows that I am trying to get back on the bike as soon as possible.

P2 continued her rehab with her teammates because she "went just to feel the camaraderie and the social support." She also relied on her friends outside her sport. "It is important to me to have the company and encouragement of other friends as well."

Employment and a source of income is a significant stressor for many people, and athletes are no different in this regard. P4 was:

> Lucky because I have a job where they know what I do in the summer time and they know that I compete and they know that these things happen. They are very good if I come in late in the morning [after my therapy]. If I had a job that was getting mad at me for missing a couple of hours in the morning I would have a whole different outlook.

P5 said "roommates helped me. You know, they are good supporters."

Interaction with the Medical Team

Interaction with the health care team can foster or hinder the psycho-emotional experience of a major injury in an elite athlete. Her initial experience in the emergency room caused unfortunate distress for P1:

> I just felt like [the hospital staff] did not care. They are used to this as their job. They just do their job and there is not a lot of emotion involved in that. I was thinking, 'no, really, pay attention to me!'

Similarly, P5 had difficulty with his rehabilitation because "no one talked to me about what happens when the cast comes off, so I just expected to heal quick." P3 pointed out that "with uncertainty comes a lot of fear." P1's rehabilitation improved from a psycho-emotional perspective when she was able to resume her medical care with her own sport medicine physician:

> The first doctor I saw did not really give me confidence. He said 'this is going to heal fine', but that is not a good enough answer for someone who depends on the bones and muscles working in perfect order to perform to the top level. He did not have a lot of confidence in his voice. My doctor here knows me a little better. He came to me with a lot more confidence because he has dealt with [other elite triathletes with this injury]. I saw him every week and he gave me a lot of confidence leaving there. I was not even concerned about what was going to happen.

P2 expressed the importance of addressing the psycho-emotional issues with injured athletes:

> My physician wanted to see me every two weeks and I think that is just to make sure that I am okay mentally because he did not touch my knee at all the last time I saw him, and we just talked. That is nice to know that he rally cares about how I am doing mentally. My knee is going to heal. He knows that someone else is taking care of the healing aspect of my knee.

Surgeons played an important role in the athletes' early psycho-emotional rehabilitation.

> P4: I was not worried about surgery. I think it was the fact that it was Dr. X. That was very comforting because I know how good he is and I know that he takes care of athletes. I know that is basically all he does is athletes' injuries.

And P2 also had a fortunate experience with her surgeon which made her injury and the necessary recovery easier to cope with. "My surgeon asked me, ideally, what is my timeline and when he could best fix it for me. That was really important to me, to have him interested in helping me get back."

The therapists who design and assist the athlete in the rehabilitation program play a significant role in the psycho-emotional recovery of the elite injured athlete. "Rehab should be communicated as a different way of training, but a lot of athletes don't see it that way,"

suggests P3. P2 advises "we need to sometimes tell athletes that it is okay to take things slow and not to push."

Unanticipated Factors

Athletes do not expect to be injured, and thus they do not prepare for injury or feel in control of the situation when something contrary occurs. This produces a number of unanticipated factors that play a role in the early recovery period. P1 illustrates:

> To be injured in a race, the fact that you would be playing it over in your head thinking, 'why did I do that', 'why did I turn this way', 'if only I had done that." Because you have a small amount of control over it. Whereas with the accident, there is not anything I could do to really control things. ... I didn't feel like I had any control. ... It was something I just could not prepare for.

Obtaining a feeling of control over the situation is an important factor for elite athletes in the rehabilitation process following major injury. P2:

> Tried to break down my physio exercises like I normally do when I am training lots so I feel like I have some control over it and no one is just telling me what to do. I am actively playing a part in my rehab.

The lack of control over the situation that caused the injury provoked negative emotions in P5. "It is frustrating because I can't help it. I can't help that I broke my wrist." P4 was encouraged by the role he played in his injury. Because he felt that his injury was a direct consequence of his own error, that "it is something that is my mistake, that I can fix, makes it so much easier for me to say I can do [my rehabilitation] and then maybe never crash again." However, he also stated that if "next year, I was coming onto the ramp and I kind of felt like something was off, something beyond my control, it would just freak me right out."

Mid-Rehabilitation Period

The mid-rehabilitation period encompassed the middle third of the expected recovery time for the injury. During this time, the athletes experienced psycho-emotional issues that were negative and internal to the athlete, positive and internal to the athlete, and issues that were peripheral to the athlete.

Negative and Internal to the Athlete Issues

Negative emotions, unknown factors and somatic issues encompass the sub-categories in this category of issues which are negative and internal to the athlete.

Negative Emotions

Frustration, anger, impatience, disappointment, loss and boredom are common negative emotions that elite athletes experience in the mid-rehabilitation period. Frustration was evoked when complications in the recovery process were encountered. P1 sustained delayed healing of her fracture and she experienced a period of time when there was question for the best way to treat her injury. "It has just been an awfully long time and so many times going to the surgeon and I keep going back and not getting an answer." Likewise, P2 suffered a set-back in her recovery when she re-injured her knee and required further surgery:

> I need to get [surgery] done again and who knows what is going to happen in the next fix. This is more frustrating than the first injury... because I don't feel like I can do anything right now, like in terms of my sport.

P1 did not experience anger at the situation of her injury until mid-way through her recovery. "I was thinking about the woman who hit me and was angry at her. I just thought, 'how could you have done this to me?' I did not feel that at all from the beginning when it initially happened."

Rehabilitaiton can be a long process and the return to full activity is often a graded task. The period of mid-recovery is difficult because of feelings of impatience. "I am blown away at how well [my knee] has come along, and I respect [my surgeon] for everything he says, but that does not change the fact that I don't want to wait another year to jump again," imparts P4. Mid-recovery, P3 considered the suggestions from his therapist that he needed to slow down his efforts as "more negative now because I am further along in the rehab and I think I am closer to my goal." P2 "thought I would be back training by now and I am not." She was impatient because she "had to wait three more weeks to see the surgeon and then get surgery ... so I am waiting eight, nine weeks." After a prolonged time waiting to see if her fracture would heal, P1 was eager for a surgical intervention to assist the fracture healing and speed her recovery:

> I was losing my patience. I am so sick of dealing with this whole situation, and I just want it to be gone. I am excited, actually, to have surgery, because [there is a] known progression and expectation of how long it will take [to heal after].

Long recovery periods, especially if they are fraught with setbacks and complications, lend to disappointment in the athlete. P4 said:

> My thoughts were always, 'this is the last time, this will be my last time I have to come [to therapy]. This will be my last time, this will be my last time.' That went on for about three months that I thought it would be my last time coming to physio and then last month I came to what I thought was really going to be my last one, but it wasn't.

Similarly, P2 became disappointed mid-way through her recovery:

> I am so disappointed in where I am right now... If I set something up for myself and then something happens and, let's say that the surgery does not heal this pain, which I

> know it will, but I have to leave all those options there because I don't want to have the disappointment I have right now.

Setbacks and complications mid-recovery lead to renewed feelings of loss. "When they realized it was not healing, they basically told me to stop doing things, and that was hard. I was thinking, 'at least I can do this' and then they took that away from me," said P1. P4 felt "the summer was brutal because I missed [water ski-jumping] so badly."

Boredom with the length of time and slow process of recovery was an issue at the mid-point of rehabilitation. P2 stated:

> Initially when you first start rehab you're quite excited... to do everything you can and then slowly you get kinda bored and tired of doing the same exercises if you are not seeing results. ... My whole workout takes two hours. And so, instead of having a six hour day, I have a two hour day. I feel boredom and maybe even feeling a little bit useless.

Unknowns

There are many unknown factors that influence the mid-rehabilitation period. A sense that the efforts expended could potentially be 'all-for-naught' became a reality at this stage. P2 felt that "if there is another complication I know that I am not even going to try to go through it." She went on to say, "I feel like I have done all that I can do and it is just not even good enough to get better."

Unexpected decisions complicated this period of recovery:

> P4: Every sport that I used to do, with this knee, I will have to learn that sport again. My thoughts were that once it is better it is better. I did not think that I would have to start off really slowly with every sport, because every sport is different.

P1 was dismayed with the medical decisions she was forced to play a role in:

> I think the hardest thing was that [the decision for surgery] was put into my court. Like, this was my decision and I did not expect that at all, because, I guess, my thoughts of going to see a surgeon or to see your family doctor is that they are going to give you the answer and I realize now that is not necessarily the case. That is what I expected, that I would go there and they would say 'this is what we are going to do'. ... We just think that doctors are God in that they know everything and they are going to tell you exactly what to do. I know that is not true, but I really expected to get a definite answer and not have to be making any of the calls myself.

As the rehabilitation process advanced, new questions and uncertainty arose. Concerns surfaced for P3. "It has now popped into my mind that, what if my elbow is never as strong as it was before? What if that translates into me not being able to lift as much weight as I did before?" P2 stated, "it just takes too much out of you and it is too hard to work towards something that you don't know is going to be there at the end." And for P1, questions arose over the process of the recovery. "I guess I won't ever know whether [pushing things too fast in rehabilitation] was the reason I did not heal, but I hope not." She said, "the uncertainty makes you question. 'Do they really know what they are doing?'"

As the rehabilitation progressed, and returning to sport loomed ahead, uncertainty about readiness to return to play arose. P2 "had only four months to train when everyone else had eight. I might be fresh, but I don't know." Her setback fostered questions about the outcome of her surgery and ability to return to sport:

> I was looking at [the ACL reconstruction] as being a rebuild and having everything new and coming up strong, and it was only to make me better. And then to have this setback happen, and to know it actually made me a little bit worse for the time being, ... I think, like, this is pointless, like I shouldn't have even gotten it done. ... Rehabilitation was going really really well until that point and so I thought well, I am

> totally on track. It is going to be fine, I am going to be back. And then having this setback I thought that maybe it was a sign that I was not supposed to be riding anymore and maybe getting this other position at school is a sign that I am supposed to be focusing more on my academics.

P1 also began to consider that she may not return to sport:

> My interpretation of what the surgeon said was that [surgery] was really risky and that what he said to me was this, "It will either cure you or it will end your career." So that was something that I had not really prepared myself for at all and did not even consider that I wouldn't be able to come back to training. ... I really didn't think that I would have to feel like this for a long time and so now I'm wondering, am I going to have this for years and years, pain from this accident for a long time?

Somatic Issues

Somatic issues continue to be a factor in the psycho-emotional rehabilitation at the mid-recovery period. Fitness and dietary concerns predominate. "It seemed like a regular part of my day to be thinking about my diet, but not to ask for a solution," remarked P1. "I went from training two to three times a day to nothing, and so I don't really know what goes on in my body when that happens and how much I should eat." "If I gain weight that is going to make me slower." P2 also expressed:

> One of my major concerns was just that I don't want to gain weight. ... It is a concern every time I go to see the coach that he might say to me, ' you had better start doing a little more cutting back on the food.' ... A lot of female athletes that I know ended up getting eating disorders or else ended up quitting because when they came back they are so fat they can not do what they wanted to do. ... But I can make sure that I am in control of my food and what is coming in is the same as what is coming out because

> the last thing I want to do is come back not only unfit but also overweight so that riding my bike is that much harder.

At this period of recovery, an awareness of the progress of rehabilitation and the regaining of fitness began to emerge. P2 noticed:

> I am maintaining at least as good a fitness level if not better than my team mates because I am doing whole body work." She realized, "I am staying on track with what everyone else is doing, so they might be doing other things with the team, but I am still getting my eight hours in. ... I could really see that things were changing. I was doing weights and I could see that the weights were increasing and I was feeling stronger and I was starting to get muscle tone back in my leg. And I have been swimming a lot so getting my fitness in the pool was really good.

P1 gave a similar expression regarding the re-emergence of her physical ability:

> At the beginning I was just happy to be alive. I was happy to be walking and it wasn't worse than it was. And then I had a kind of panic, like I'm losing all my fitness and I am not healthy. I'm not, you know, I am not fit any more, and so that was a kind of struggle to feel like that. ... Now I am actually swimming so I still feel like I am doing some training and making ground.

Positive and Internal to the Athlete Issues

During the mid-rehabilitation period, the athlete experienced a number of positive issues that fostered the psycho-emotional rehabilitation of their physical injury. Among these factors, psychological issues, anticipation, positive outlook, focus, progress, distractions, positive thoughts and perceiving benefits of injury and rehabilitation were the sub-categories that emerged from the analysis of the data.

Psychological Issues

Self perception and improved self image were the psychological issues which elite athletes experienced in the mid-recovery period. P3 stated, "I kind of searched within myself and said, well, I love football. I have always loved playing football and I want to play no matter what." Despite his prolonged absence from sport, P3 said "I still consider myself a football player." P2 found gratification in focusing her energy into her academics during her period of recovery. She discovered:

> All the people that I have met at school think I am a cyclist or they have heard that I am a good cyclist but they have never actually seen me on a bike. All they have ever done is see me with crutches and hobbling around. ... I have always been known as an athlete and now I am just a student. ...It does take some pressure off, in a sense, that I know that I can be liked just as much not being a successful competitive athlete, as just being a fellow student, just knowing that I am liked for who I am and not just for my success that I have had.

During this time, P1 learned that she did not want others to associate her injury with her as an athlete. "[The injury] is not something I want to be talked about for."

Recovery from major athletic injury led P4 to discover an improved self image. "I am pretty happy with the fact that I have come away from this stronger in body, but I feel stronger in mind, too." P2 learned that "people have come to respect me as being a smart person or being a good teacher, you know. I realize that I can do other things as well as I can do sports." She also realized:

> I feel like I am trying to prove to everyone that this injury isn't that severe and that I am coming back, and may be I am just trying to change it around in my head because I am wanting to prove to myself that I can come back from something that isn't that severe.

P1 also discovered that she had a renewed perception of herself as a result of the recovery process from her injury:

> I am happy that I was able to handle [the setback] positively. I don't know if I would have been able to do that a couple of years ago. So I think I have kind of grown to know how to handle different situations and, you know, I feel good that I don't' think something is going to come to me that I can't handle.

Anticipation

Anticipation of returning to sport was fostered in the mid-rehabilitation period by reassessing expectations and timelines for the recovery. P3 related, "I did not expect any problems at all." P1 found her expectations for the recovery were quite different than the reality of her recovery. She had not anticipated any setbacks, nor had she been advised of a recovery other than one that would be uneventful. When she experienced a delayed union of her fracture, this complicated her psycho-emotional experience with her rehabilitation. She said, "If it was talked about at the beginning, the possibility of it not healing right away or in the time expected, it would have been more helpful." She went on to say, "the possibility was not ever presented to me that it may take three months to heal." P1 had expected to be competing at the World Championships but this was curtailed because of her injury:

> When World's comes... that is going to be kind of a hard time because I should be going. I am just going to have to be stronger at that time and know that I would be going, but it is there next year.

P4 realized he was:

> ...pretty happy about the way that I dealt with [the injury and rehabilitation]. I mean, I have expected maybe a little too much from myself as far as getting back to things a little bit sooner than maybe I should. But as far as I am concerned that is a good thing because I don't want to just have this as a crutch for the rest of my sporting days.

And P3 expected the recovery for elbow injury to reflect his past experiences:

> I am relying a lot on past experiences to get through this. I had positive experiences in the past, positive in the fact that I have been able to rehabilitate and recover. ... I am going to come back this season, but I am not going to be coming back at 100%. ... Every year, every off-season, I always get stronger and I expect to get stronger whether I am injured this year or not.

P3 also described how his progress in rehabilitation affected his thoughts and expectations:

> The thoughts I have now, I don't think have changed [from earlier in the injury] but I think the way that I look at them, the weight I put on them has changed a little bit just because I am further along in my rehab so I can see that I am closer to my expectations.

The athletes' personal timelines influenced the mid phase of the rehabilitation process. Universally, each athlete expressed the belief that despite the guidelines that were advised by their physician with regards to the time needed to recover, they expected to recover quicker. This belief stemmed from a false expectation that their athleticism would influence healing. P4 advised, "being a competitive person I would want [my rehabilitation] to be quicker than [other people]. I would want to work harder to get to these stages." P5 said, "I am a healthy guy, no drinking, no smoking...I think that I heal faster than normal people." P4 expressed similar sentiments:

> I have been in sports for a long time, working hard to stay in sport. I think that my body is, you know, fairly strong and stronger than the person who sits on his couch every night. So I compare myself to the guy who is sitting on his couch... and I am out playing sports – he gets hurt and I get hurt at the same time. I expect my body is going to be stronger and recover faster. I mean, I eat healthy. Joe Blow on the couch doesn't eat healthy. If he gets sick I expect him to be sick longer than I am because

> my immune system is obviously going to kick in faster because I am healthier. That is my mind set. ... I think [my doctors] telling me it will be a year [to full recovery] probably motivates me quite a bit to get it done quicker than that. ... The doctors basically have a time frame, which is a year, and they give that to a person like me, or a person that doesn't do any sort of activity what-so-ever. So I feel that if I work it hard enough, so that I feel that it is ready to go, then my feeling is that I probably will go.

And P3 had a similar experience:

> The orthopedic surgeon said just active range of motion for six weeks and I am beyond that and I am glad we did push it because I think that I was capable of it and I don't like to be held back.

P3 asked his brother to help curtail his inclination to push the envelope of his time for recovery:

> I know there is a fine line between ready to go and not quite ready to go. I am a little bit worried about that fine line because the not quite ready to go is usually when I do go. So ... I asked my brother if he could try to do his best this summer to not let me do something stupid.

Positive Outlook

A positive outlook was fostered at the mid-recovery period by positive thinking, looking for improvement and maintaining perspective. P1 looked forward to opportunities to think positively. "I am anticipating when World's comes. ... It will be a challenge to try and be positive." P3 related:

> I feel fantastic. I am very happy with the fact that I have been able to keep it up. I find it very difficulty in the winter to have any sort of motivation, especially when it is

> this terrible outside. So for me to have a winter like this... to come home after working out, that I feel the way I do, it has been great.

Actively looking for improvement in function helped P1 at the mid-rehabilitation phase. "I am really trying to recognize improvement...I feel like I am able to do a lot more and I don't want to miss that and not notice because then I won't really appreciate getting back my life." And P3 noticed:

> Since I have been able to be mobile and do most of the things, besides sports, that I would like to do ... it has affected me in a positive way because I am in the gym 5 times a week... my knee feels worse but the rest of my body feels better.

As the recovery process progressed to the mid-point, and function was returning for the athletes in this study, concerted attempts to maintain perspective were made. P3 said, "I have to keep it in perspective that my rehab is not finished yet." And P1 stated:

> It seems like whenever I used to find that I was almost losing it, that there is something that will come into my life, someone or, you know, a sign that will come into my life that will put me back into perspective. ... There is always something that kind of makes you go, "huh, my life is pretty good."

Focus

Focus during the mid-recovery period was maintained by exerting self control, drive, reaffirming the meaning of sport and the athletes' need for a purpose. P1 demonstrated self control of her focus in recovery in this manner:

> I am trying to really not pay attention to what everyone else is doing because I am in the pool at the same time as the rest of the group, which is kind of hard because they are doing hard workouts and you can see them breathing heavy while I am just doing my little kick. ... In the back of my mind, "oh, I can't swim" and this is what I really need to be working on right now. But I know that there is lots of stuff that you can do

> to help your swimming and it doesn't have to be actual swimming. I am trying to focus on those things and knowing that will benefit me in the long run.

P4 illustrated drive and determination to perservere with the recovery process:

> All I remember [of therapy] is sitting on that bed and just waiting that the time would be over. That is all I can remember. I was just clenching my teeth, I just hated it. It is so hard to try and get through that. ... I went home and sat down on the couch and said, 'I don't want to go back there again' because it would be sore for one to two days after that. Once it settled down again I would go back to the gym and I would try the things that I was doing before and it seemed to be getting better even though the pain was worse. It was for the good and I knew it was at the time, or else I wouldn't be sitting there going through that pain if I didn't think it was for the better.

P1 expressed similar thoughts, "I am trying to focus on what I can do as opposed to how long it is going to take me." She reminded herself, "the kind of stuff I am doing right now is important... I get this chance to work on it when other people don't."

P3 reevaluated the meaning of sport during his recovery. "I don't think I ever lost sight of coming back. ...I still believe that I can contribute to this team." And P2 said, "I am not trying to prove that I am coming back for them. I am trying to prove that I am coming back for me... I am riding for me." P1 reminded herself of the value she places on her time in sport, "When I am running is when I have my time and my thoughts... when I need to get away or just think about things, that is when I do that, when I am running."

Establishing a need for purpose in sport was important in the mid-recovery period. P1 indicated, "I just felt like I am not doing anything... I am not working, not training. I have to figure out something else because I can't just not be doing stuff. Like what am I doing on this earth, even?" P2 expressed her purpose to a teammate:

> He thinks that I do too much and that I should just ease off. The reason why I get injured is ... because I over train. I compete at a higher level than he does and so I feel like saying to him sometimes, "Well, this is what you have to do to compete at a World Cup level. I don't compete just nationally."

When considering his recovery and eventual return to sport, P4 said:

> I need to water-ski jump, for sure. That is – I don't think there is anything more grueling that I know how to do to my knee than jump. So if I can do that I can feel that I can pretty much do anything. I have to land one, and it has to be over 100 feet. That would be about 50 feet short, so I have to pick up where I was when I was 16. At 100 feet you are not plopping anymore, you are not lolly-gagging over the jump, you are taking it.

Progress

Progress through the mid-recovery period was evidenced by establishing a new focus, recognizing and meeting milestones and advancing the rehabilitation process. P1 illustrated her attainment of a new focus to her rehabilitation when she was able to put aside the accident that caused the injury. "For quite a while I was really overwhelmed with what actually happened. Now I don't have that in my head everyday. I don't visualize what happened. Now I am focusing on my rehab rather than what happened to me." P4 established a new focus and goal for his recovery:

> I want to have the cuts to the jump. I want to be able to ride it and land it. So when I can do that, then I feel that I will be back. I won't be back where I want to be back, but I will be back to where I can build to be back where I should be.

Reaching and establishing milestones in the recovery process were important. P4 advised, "finishing therapy is the first milestone. That is the one that I really really wanted to get out of the way." Because of his work in his recovery period, P3 "[thought he was] mentally

prepared to return to football just because [he] was telling [himself]that [he] was going to come back and be able to come back." It was important for P2 to "understand that your recovery takes a long time and a lot out of you and it changes your life." She was buoyed when her coach "told me that [the Olympics in] Beijing 2008 should be a goal and I had already made that decision."

The advancement of therapy and rehabilitation helped in realizing the progress. P4 said, "today was my last physio so I am really excited now." P2 noticed "I could see progression. I was going to physio twice a week and almost every visit I could do something new." And P3 "[realized] that I am still improving."

Distractions

Distractions from the rehabilitation tasks were beneficial for P4:

> The most exciting thing for me is I can still be involved with coaching. ... My summer is still going to be filled with waterskiing whether it is me doing it or other people doing it and me passing on what I know.

And P3 also benefited from distractions. "I work three nights a week, so that kinda takes my mind off it a little. When I am not really busy and when I am idle, I think about [my elbow]." P2 gained distraction from school. "It has just given me another outlet and it has been great for me to get feedback at school. It has given me something else to focus my energy on and to try and be good at." She went on to say:

> I was wanting to do a good job at [school] and so knowing that I didn't have to focus so much on my knee ... or on cycling because of my knee, it was a relief. ... I got the job lecturing so I was really really busy at school so it really didn't matter [that I wasn't training]. I just tried to do my hours and a bit every day or get my work out in and that would make me happy just doing that.

To fill her time, P1 took up employment and this helped to distract her during her rehabilitation. "I have just been really busy [at work] so I have not had the chance to be down. I am so tired that I am not even worried about [my clavicle]."

Positive Thoughts

The sub-category of positive thoughts was comprised of the lower order themes of acceptance, confidence and realistic outlook. P1 accepted the bad days as a part of the recovery process. "I realize that it is okay if I have a bad day. So I kind of accepted that there are going to be some days like this." She stated, "I have no control so... there is no point in dwelling on it." P2 accepted her setback which required a further surgical intervention:

> I decided that I don' t care how much pain I am in. I am just going to get through it because I know it is a meniscal tear. I know that the pain will be fixed as soon as I get the meniscus trimmed or shaved.

Confidence in his abilities boosted P4's recovery. "I feel that it is different for everybody and I know if I feel that I am ready to go, then I am ready to go." Similarly, P3 was confident of his progress. "I knew there was always the possibility that I would not be back, but I was still confident."

Having a realistic outlook was beneficial to P1 during her mid-rehabilitation period:

> I guess it is kind of hitting me, the reality that this is going to take a lot longer than I thought it would. ... I don't know what is going to happen so I am not getting too worked up about it because, you know, there is nothing that I can do right now but wait.

Benefits

By the mid-point of their recovery process, each athlete was experiencing a benefit from their injury and necessary rehabilitation. Improved training, improved insight and improved relationships were consequences of the injury and rehabilitation. P1 considered her recovery

as "what I need for what I am doing and I need this to improve, as opposed to I will just do what everyone else is doing." P4 found:

> I missed a season five years ago and I came back stronger, but I came back older. So the strength came with age and my body development. But this time is going to be different because I am going to come back stronger and I feel I will be able to get back to where I was, if not better. ... My goal is to be better than I was before I was hurt.

And P2 realized:

> I will come back stronger because my upper body is a lot stronger and it is bigger from swimming. And my core is a lot stronger as well. ... The rehab exercises I do now I consider it training because I am focusing more on core and getting my whole body stable as opposed to just my knee.

Improvements in insight affected the athletes training, as well as other aspects of their lives. P3 commented, "Throughout this rehab, whenever people asked me [about returning to sport] I truly believe that I believed in what I was saying and I was not just giving myself false hope." P2 discovered:

> I know that if I quit now that I would never be satisfied. ... When school is over, I am going to feel that I need to excel at something again. I might not always have my body and the talent that I have right now. ... Athletics also gives me what I need for school. Athletics gives me a lot of the experiences I need if I am wanting to be a sport psychologist or if I am wanting to work with teams and elite athletes.

P1 learned that the medical profession and the health care team can not always provide easy, immediate answers. She has learned to expect more of herself in the decision making processes which affect her:

> I think to go back, I would have done a lot more research on my own, and looked more so I was more informed on how controversial the whole thing is as far as surgery

> and why they don't know [what the best treatment is'. ... I realize that [doctors] don't know everything and that it is okay for me to ask questions. ... Now when I get information I am not going to just take it in and then go and do that exactly. I am going to look into it more myself, ask questions.

The insight that P4 gained from his injury and rehabilitation process has affected other aspects of his life:

> I guess I feel a lot better about myself for various reasons, and mostly health wise. I still have a lot of bad habits but I think that some of those bad habits are being offset by the fact that I am trying to take care of myself. ..I have been eating well, and I open up more time to go to the gym at work. I just noticed all these different things that have immediately started from the knee, so I suppose this knee [injury] has almost more benefits than it has down falls at this point.

"I have more time to spend with my friends," related P1. This improved her relationships with her social circle. This same benefit carried over to her relationship with her coach:

> It has been a good opportunity for [my coach and I] to really talk about what I need when I am going through something like an injury. It is good for us to discuss what kind of feedback I need and what will help me as opposed to when normally he could just push me and try to make me work harder.

Peripheral to the Athlete

There were number of factors which were peripheral to the athletes that affected the psycho-emotional issues in the mid-recovery phase. The sub categories including the roles of others and the health care team comprised the category of issues peripheral to the athlete.

Role of Others

Friends and family, teammates and coaches and sponsors are important factors in the athletes' lives which influenced the rehabilitation from major injury. P4 was assisted and encouraged in his rehabilitation by his brother:

> I think it supplies a bit of, almost adrenalin, that I wouldn't have had just being by myself. If it was anyone but my brother, I wouldn't look forward to the [rehabilitation] but with him there, I know he is not getting any joy out of watching me in pain. He is probably not enjoying it at all, but at the same time, he is trying to help me.

P3 did not have his parental support of his choice of sport. "My mom... she never wanted me to play football in the first place. ... It would be nice if she were more involved but... she will never understand." He went on to say, "I don't think she understands what [football] means to me... but I understand her perspective." Fortunately, P3 felt he had a lot of support from his friends. "One of my close friends blew out both his knees playing football and he always said 'I would give you my elbow in a second if I could.'" And "friends that would see me at school ... would always ask me how I am doing, and I could say, 'yeah, it is improving.'" P2 related that she needed "my family to phone me once a week to ask how I am doing and so they do that and that has been really nice." P1 reported, "the past three times I have gone to see the surgeon I have had three different friends come with me." She also relayed, "I am lucky to be able to spend time and have a family that is that close to me too so I try and focus on that kind of stuff."

Teammates and coaches played a pivotal role in the psycho-emotional rehabilitation from the major injuries. P1 stated:

> It would have been a lot more difficult if I had not had the support group of my training partners. I think being part of a group like that makes it so much easier to

> deal with. Even though they may not understand how I feel they do know what it is like to not be able to train so that has been a big, big support for me and a lot of help. ... I am not in this alone which I think is a huge thing. ... Just to know that my [teammates] understand and that they care about me getting better is kind of a nice feeling too. It gives you something else to focus on if I am ever feeling sorry for myself.

Her relationship with her coach improved as well:

> P1: The big thing is just the communication with my coach. We have meetings and stuff and I told him that I needed him to talk to me and just make me feel like I am actually doing something. I do not need encouragement just to be back, I need direction to do this or do that a different way, or something on the technique.

P2 also found "it helps to have someone that understands the frustrations of being injured." She met with her coach, "and he still said 'you have the talent and I don't often tell my athletes what their goals should be, but you should still keep Beijing [2008 Olympics] as your goal.'"

P2 and P4 lost their sponsorship as a result of their injuries. This was a negative factor in the psycho-emotional recovery from the injury. P2 advised:

> I think the only harmful thing has been the sponsor that dropped me and a team I was supposed to ride for. Knowing that these people have no faith in me coming back and thinking I am done, I'm washed away and finished, and having them not tell that to my face, that is probably the most hurtful.

P4 was able to put a positive spin on his loss:

> If I take a year off I will probably move up another division and then it will be easier for me against the older guys. So I should be able to finish quite well and get my sponsorship back. I feel I can get back to where I was before.

Health Care Team

Interaction with the health care team is pervasive throughout the recovery process. Elite athletes experienced positive and negative issues with all members of the health care team. P1 was dismayed by the lack of definitive answers. "I expected a firm answer, and I didn't get that. ... I thought they would have more concrete answers for me and specific answers. ... You do not expect to get the answer 'I don't know' from a doctor." Unfortunately, P1 "felt that I was really uninformed. ... I would like to have more guidance on what I should and shouldn't do because I have never broken a bone before so I really don't know." P4 remembers "having a lot of questions that first week." He "appreciates it when physicians [and therapists] are honest. I would rather have somebody tell me it is going to take a lot longer than maybe it should be than shorter." P5 also felt lost in dealing with his physician:

> The doctors are – have this stuff happen all the time and it is not a big deal to them but for me, this is the first time I have ever broken my wrist. I don't know what I am supposed to expect or do. So it seems like my questions are big for me, but it means little to them because they go through this all the time. ... I didn't know so I would ask but they were too busy, or whatever, to answer.

P3 said, "I appreciate that people care about my health," but he was dismayed by his surgeon's lack of consideration for his desire to return to play in his current season. "The season is only five weeks over and to say the rest of the season is not worth playing, that is a cop out. The surgeon, that was his main reason for me not coming back."

Surgeons were both a help and a hindrance to the psycho-emotional recovery from major injury. P2 related:

> I thought I would have been scheduled a little bit more time. I literally saw him for three minutes and he left. I thought, 'I came here, spent $100 to change my flights to come here and see you for three minutes?' So I am kinda pissed off!

P1 believed "my surgeon will be able to give me more direction so I can feel confident that I am not doing something that will be slowing the healing or causing problems." She was just as dismayed that her surgeon could not give her the absolute answers that she was seeking from her sport medicine physician. "I was pretty surprised to see the surgeon and him to say, 'well, we are not really sure, and, you know my guess is that it is going to get better.'"

P3 had a very fortunate experience with his surgeon:

> My surgeon is the best knee surgeon there is, in this area at least. He got me in very very quickly after my injury so my recovery time was not going to be as long as it could have been. And he is very comforting and he makes you understand what is going to happen to you before he cuts you open. He explained everything to me exactly what was going to happen, exactly how long everything was going to take. Before I went in [to the operating room] I was extremely nervous and he came over and comforted me, told me exactly what he was going to do, how long it was going to take. ... To have a doctor who actually seems to genuinely care about the result of your injury made a huge difference and I feel very confident in his work and I think that is another reason why I feel I can get back a lot sooner than after a year.

P4 had a similar fortunate experience with his physical therapist:

> I thought to myself, 'this is terrible, I don't think I am coming back here – I have to find a new physical therapist who doesn't do that to me.' But, you know, [my therapist] just always has something that I could be doing and that helps tremendously and has helped tremendously in my recovery as well.

P1 needed more specific guidance from her health care team:

> The only thing that I have really found frustrating is just the amount of feedback I am getting from [my doctors and therapists] for what I should be doing for rehab. I know what to do for training. Basically they are just saying do what you can and what does

> not hurt. ... But for getting stronger and getting the muscles around my shoulder to be back where they need to be, I am really not getting any guidance, really not enough for me.

P2 illustrated what she was missing from her therapy:

> Sometimes I feel like I can't talk about my rehab with my physio because I think that he is so rehab oriented, that this is all I have to do in my whole entire life, when I actually have to train and go to school and teach. ... So if the physio was able to acknowledge all the other things in my life it would be easier to keep on track for your sport. It might make me better able to see that I can do both [school and cycling] because otherwise I am just very black and white. ... If I had a physio who understood that I am questioning whether I am coming back from this injury because I have all these other things in my life then he would try to maybe help me balance it a little instead of having it so heavily weighted in getting me back.

Late Rehabilitation and Return to Sport Period

The late rehabilitation period encompassed the last third of the expected recovery time until the athlete returned to full sport participation. P4 was advised by his surgeon to refrain from water-ski jumping for a period of one year. Despite this limitation on jumping, he was allowed full participation in all other sports and activities. Therefore, for the sake of this study, he was considered to have been rehabilitated and returned to sport.

Personal Benefits

The period of late rehabilitation and returning to sport demonstrated that for elite athletes this is a positive period of recovery with perceived personal benefits and benefits to others during this time. The category of personal benefit was comprised of the sub-categories of

personal growth, advantages of injury and rehabilitation, role of others, apprehension and return to sport issues.

Personal Growth

The lower order themes of insight, personal challenge, achievement and enjoyment comprised the sub-category of personal growth. The experience of injury and rehabilitation produced unanimous improvements in insight for the athletes in this study. P3 stated, "I had an ideal scenario in mind coming into the rehab but now I don't think I was entirely prepared for the frustration that came back [when I returned to football]" P4 remarked, "this whole thing has been about wanting to be stronger, and to be healthy again." He also felt, "This experience has taught me a few things about myself and sort of is changing me, or my thoughts of what I believe in." P2 reminded herself, "Everything I have done up to this point is still building and that is what I have to keep remembering." P1 commented on the positive experience she had from being a part of this study:

> It has been really good to be able to speak with you about just how I am feeling and what is going on. It has been different conversations that I would have had with my friends or my coach. I think it has really helped me to go through this and think about what I am doing and what I am going through. You can't just deal with it internally so I think that [talking with you] was a big part of going through this and coming out feeling good and understanding how I feel about what is going on.

P3 also commented on the value of talking about the psycho-emotional issues throughout his recovery:

> I believe that these interviews have helped me focus on what I want to do with my rehab and where I want to be. Otherwise the only thing I would have to go on is the expectations of the physios and random thoughts in my head. [Talking with you] has

> given me the chance to organize my thoughts and feelings about the injury and I think that getting your mind mentally and emotionally in sync with what your body is telling you is crucial.

P5 realized the importance of his athleticism to his self esteem and self image:

> I always feel like I have something to prove. ... I think I do need approval, but at the same time I know within myself my capabilities. But sometimes it doesn't hurt to be praised by others. ... People see me as being a really good athlete, and athletic things I excel at. When people couldn't see me play sports, I couldn't prove to them what I can do. I don't want people to know that I can get hurt. It makes me look weak. ... Being weak or hurt and stuff like that makes me look just like a normal person.

P1 realized, "this was the part that I had to go through to learn and now I am fresh and I am excited to train and I am ready to race, so it is not too late." She went on to say:

> I think I have taken what I can out of it and taken this experience and gained something from it. ... I can still be happy in my life and have negative things going on, and deal with them. ... I am stronger than I thought I was as far as handling hard situations.

Recognizing the personal challenge that recovery and sport provided allowed for personal growth of these elite athletes. P1 summed this idea with her comments:

> You have to do better, and that is the kind of mentality. It is not even really so I can beat you, it is just so I can say that I did it. ... This is what makes [us] top athletes is that confidence in ourselves and that internal belief that I am better than everybody else here and I can be better if I am not. I am going to get better and do whatever it takes.

Attaining a sense of achievement was paramount in the final phase of rehabilitation. P1 recounted, "I want to be able to achieve it and just find something that I am able to push to the limit and to possibly reach my full potential. And be successful and travel the world and see things." P3 was buoyed by his ability to return to his team in the same season as his injury:

> I have gone though this before ... injuries that have kept me out for a little bit. ...The way I feel about coming back, is the same because my rehab went pretty well, pretty smoothly and I got back to competition [this season] which was ultimately my goal, and it gives my confidence a boost.

P4 commented on the need to water-ski jump again to be able to have the sense of validating the rehabilitation he undertook:

> No matter what I do, what sport, if I am not able to [jump], and I guess it is going to be a fear for quite a while, but if I conquer that fear, then in my mind all the work I have done is really great. All the things I have done are for the one goal of getting back to jumping.

The late rehabilitation phase caused a resurgence in enjoyment of sport and an active lifestyle. P1 advised that she "[couldn't] think of anything better to do." And P3 stated, "it felt so good to be fully active again because I did feel like I was in kind of a lull for so long."

Advantages of Injury and Rehabilitation

Continuing from the mid-recovery phase, elite athletes continue to recognize advantages of injury and rehabilitation into the late rehabilitation period. Focusing on a new outlook, maintaining perspective, considering lessons learned and the benefits of the injury were the lower order themes that comprised this sub-category. P1 discovered her new outlook during a poor training session:

> I am having the worst training session ever. I am absolutely exhausted, but I am swimming and I am looking up to the sky, and I'm in Australia and life is absolutely

> amazing. I'm out for a bike ride and I have to stop because I am too shattered, my legs are done and I can't finish the session. I tell my coach I am done, and I am riding back smiling because I am on my bike. ... Last year I probably would have been angry and gone home and thrown things, you know, I mean I don't get that upset but it is just that I definitely wouldn't have been able to step aside and go, 'wait a minute, this is a good life.'

P2 gained a new out look towards balancing all the aspects of her life:

> I was able, with this injury, to live a more balanced life and that is pretty key, I think, in achieving excellence, being able to have balance. When you are so caught up in just training and getting all your training in and worrying about your funding and what your sponsorship is you are not able to step back and to see how much you love your sport and how it fits into your life. So instead of saying 'I am a cyclist' I now say 'I cycle.'

P3 found that his rehabilitation "gave me a chance to organize my thoughts and feelings about the injury and I think that getting your mind mentally and emotionally in synch with what your body is telling you will help." With his recovery, P3 gained a new outlook towards his academic potential:

> I think that this has made me think about that possibility that, you know, I won't be able to play forever, and ... maybe I should move on with my life and kind of make the transition from being a person that is characterized through my physical body and maybe it is time to focus on more of my mental being. ... I am graduating this year and, actually, the next year will be interesting to see. It is kind of a fork in the road for me.

P4 related, "I am not so eager to jump into something. I am trying to think a little bit more before I do something." And P5 came to realize, "I will better myself in what I can."

During the final phase of rehabilitation, maintaining perspective was a continuing theme. P5 maintained, "The key is to realize that I have an injury but make the best of what you still have because you still have other parts of your body that you can do things with." P4 realized that a significant injury may cause lingering effects:

> I don't think [the crash] is ever going to leave my mind. I just think that over time it is going to get less scary for me to ride the ramp and over time it is going to get harder for me to stay away from the ramp. ... I don't want to be in a wheel chair at 70 years old... but it is a passion and until that passion goes away I don't think that there is going to be an end to it.

P2 stated, "[my rehabilitation] has given me the window to see what I am passionate about, other aspects of life I am passionate about or interested in or what to explore more." She has a new perspective of, "looking at how I define myself as a person, not just an athlete who has chosen to get through injury... but how I can better live my life overall."

Considering Rose and Jevne's (1993) risk model of injury, it is paramount for athletes to learn the lessons of injury, thus preventing further injury. In this study, all the athletes learned lessons from the experience of being injured and going through a rehabilitation period. This became evident to them late in the recovery period. P3 learned "verbalizing [my thoughts] to somebody helps organize thoughts and makes you realize what you are feeling." He also learned, "the better you adapt to your environment the more successful you will be. ... I get reminded once in a while that I am not as invulnerable as I think." P4 struggled with the idea of putting off returning to ski jumping for a period of one year after his recovery:

> [I] realize that it is not something that I can just bounce back and be back in the water in six months. The problem is that there are a lot of skiers out there who do go back really early, so that sets a precedent for some other people who kind of want to take their time to get back and be smart about it.

The rehabilitation period from her injury was a time or many self discoveries and lessons to be learned for P2:

> I have slowly come to realize that I only have one left knee and I only have one right knee and I need both of them in order to function to be able to walk and to be able to run and go to the grocery store and get in and out of my car – injury has given me a vacation from my go-go life and stepped back to say, 'hey, this is the only body that you have and you had better take care of it.' ... I think the flexibility of my goals is much more there now and much more apparent and so that maybe my goal now is just to ride and be able to ride at my highest level. ...The goal is more from my own goals as opposed to saying, 'well, if I want to make the Canadian team or the World team, then I have to be top gun.' ... I just told myself that I know my goal is so far away that I can handle this, making something else a priority and still remember that cycling is something that I do love and want to do, but it is not the be-all to end-all. There are other things in my life.

P2 also learned:

> I am more internally motivated now. ... I love the sport and I love riding, just being on my bike whether it is a road bike or mountain bike. So I think if I don' t make a team, I will still come out ahead than if I hadn't had any of this [rehabilitation and self discovery] because I would have been just be plugging away because that was the only thing I knew.

P2 has come to learn the importance of quality over quantity. "Getting quality in for the hours I am doing [is important]. ... If I can only do 10 hours on the bike then they are going to be quality hours and that makes a difference."

P3 had learned "I need to take responsibility too. It is not just the doctor's or surgeon's responsibility and so I now realize that." And she discovered the importance of self in her athletic pursuits:

> So much of what I have been doing up until the last two months has been on my own and all that has mattered is how I feel with what I am doing. It is a positive thing to have that experience because you don't get to do that very often as a competitive athlete.

Injury and the necessary rehabilitation do have benefits. However it is not until late in recovery that these benefits begin to be fully recognized and appreciated. P2 noted, "I have come onto the bike with my upper body and core stronger. So [rehabilitation] certainly helped me body strength wise as well as aerobic conditioning." P5 also benefited from his rehabilitation. " I have never been able to jump like this before and it is all because I was working on my legs." P3 found "my perseverance has surfaced, was forced to surface." P1 remarked, "I have the advantage because I was normally tired at that point." P2 benefited in her relationships outside of sport. "It has afforded me a more balanced lifestyle. ...I am more flexible ... so that is helping my relationships."

Role of Others

Other people, coaches and teammates continued to play significant roles in the psycho-emotional recovery of these elite athletes. P2 stated, "having other people say, 'Oh, I haven't seen you for a long time, wow, you are really fit,' or 'you are climbing really well', and just starting to look fitter or look better is a good thing." P4 related a negative experience:

> My water ski sponsor has been quite a – I don't know what to call him without swearing but he has not been very good. He has been very, umm, he has been sort of forceful and wants me to be back ASAP and this sort of stuff. He is not listening to anything I have to say so he has been terrible.

Coaches and teammates play an integral role in the rehabilitation process. "Hearing the coach say, 'you look 100%' was good for me because I don't' know if I look 100%. I can't see myself when I ride but I know that I feel close to 100%," said P2. She also commented on the common experience with a friend and teammate during her recovery:

> Having X going through and injury at the same time was very helpful in just seeing that somebody else can do what I am doing and just watch her reaction to set backs that she has had as well as her injury. That was very helpful, and just having someone who understood. You know, there is kind of an unspoken silence, like this sucks, like this really sucks, and you both know and you don't need to go any further. You don't have to explain.

P1 remarked on her coach and social relationships:

> What [my coach] was doing was making me feel like this is important even though a lot of times it didn't really feel that way I my head, I didn't think it was that important. He was still taking it seriously and making me feel like this is worthwhile. ... It was necessary to have friends and have the friendships that I have and so I know that they will still be there for me. ... I have such an awesome support system here and I am really lucky and I realize that. Just being part of a team atmosphere, having the coaching staff, having my family behind me, has made it so much easier.

Apprehension

Questions and anxiety made the time of returning to sport apprehensive. P1 remarked:

> I feel confident on my bike. I feel confident running, for sure. My weakest is the swimming and that was what I was not able to do for five months. The big question is if I can get my swimming to where I need to that is going to take me to the level I want to go.

P1 advised:

> [Teammates] see me jog and seeing me jogging is that I am ready to go, right? So that is kind of difficult because it is like they perceive you as ready to go, so all of the sudden your perception starts to change as far as maybe I am ready to go. Maybe I don't need to keep doing my physio or maybe I don't need to rest anymore. Maybe I don't need to ice after because, you know, maybe everything is fine. But truly that is not the way that it is so friends are not good for that part as far as I am concerned, in the rehab purposes because they just want you to be back.

The anxiety surrounding the resolution of recovery and returning to sport is a palpable thing for elite athletes. P5 said:

> I had a test in the morning, and then right after the mid term I came to get the [final] x-rays. I was more nervous sitting in the doctor's room than I was any time before the test. I was so nervous. I wanted to be healthy. I wanted to go play.

Despite completing his physical rehabilitation and planning to refrain from ski jumping for a 1 year period, P4 was not prepared from an emotional recovery to jump again:

> I don't know if it is so much injury as it is crash because that is what stays in my mind. My mind is not focused on all of this stuff, like working out and this stuff. That is just secondary to me. It is the actual crashing portion that I don't want to do again because it is just a terrible feeling. So that is – I mean the injury, these things happen, but the crashing is what sticks in my mind.

P1 was also anxious about the idea of returning to sport:

> I am not planning my whole race season. I have my tickets booked for going to Europe and things like that, so it is scary to think that I am going to be jumping back into that. Training is one thing to be able to do and I am comfortable training. It will be hard putting yourself out there. Racing is another thing because that is where you see how far I have come.

Returning to Sport

Returning to sport had a number of issues surrounding this final step of the rehabilitation process. Lower order themes that comprised this sub-category include lifestyle factors, fitness, training factors and returning to sport. P1 illustrated the difference between rehabilitation and training:

> I was not doing full training, I was just kind of getting back so I was not thinking 'this is going to be a hard session tomorrow, I have to get a good sleep, I have to eat a proper dinner.' So I had a break from that for a while. But it is not hard once you get into doing it and you make it your lifestyle but it is very different from not being in training seriously. ... It definitely has made me have to step back and think about what I am doing. What is this lifestyle and what made me want to go back to it?

Fitness and the resumption of the elite athlete training schedules helped to complete the final period of rehabilitation. P1 stated, "I didn't really feel like a triathlete [during my rehabilitation] ... but now it is exciting to feel good and feel strong... it is exciting to feel fit again." She went on to say, "my fitness came back very quickly ... because of what I did while trying to get through recovery. ... All that work was important even though at the time I didn't really take it seriously." P2 illustrated, as well, the importance placed of fitness in the recovery:

> Seeing a huge jump in my fitness that happened automatically. Thinking about the progress and how fast my body adapted to training again made me realize that I am an elite athlete and I am not just somebody who just trains an hour or goes to the pool and does a 2000 meter swim and that is all I can do. I think just seeing how my body can respond to the pressure that I put on it again was great.

The rehabilitation process and resumption of fitness improved the training factors for the athletes. P1 advised:

> That competitiveness is still there. I am just turning it more to be a positive energy as opposed to affecting me negatively and letting it control my work out. So instead of focusing on the pace of someone else or what they are doing I am focusing on internal things like my technique and my form, which is what you always want to be doing. ... [Before the injury] I would be comparing myself to other people and getting frustrated if I am not where I want to be. Whereas now I am stepping aside and going, 'you know, I am doing my own thing because I am in a totally different spot.'... I need to focus on technique and that is going to make me faster.

P5 had expectations for his training following the discontinuation of the casting of his wrist:

> I made up my mind that I was going to be back to playing basketball a couple of days after I had the cast off. ...During the whole time I had the cast on, I still worked out and went running and I would lift lots with my legs. I did that because I figure when I get the cast off I will just be able to walk in and start playing again.

P3 credited his work at rehabilitation in easing his return to sport:

> I did really push my arm in terms of my rehab and I think that confidence helped translate into the practice. I mean, I was leery about coming back but I knew that I would be able to come back. I had no reservations about going into full contact. ... The first week back at practice I did push the limit and that in itself reaffirmed or helped my confidence because I participated in everything. I did all the heavy hitting and all that. ... But I was a little frustrated because I was not as capable, I was not as strong and was not as fast as I was before the injury. But I knew it was coming, I knew that I would not be physically at the same point... and it did come back relatively quickly.

P4 "had an idea in my mind of how I wanted to go about getting back from this." His plans for his return to sport included, "going hard until you feel that you can kind of ease off a little

bit." P2 advised, "It is a lot easier to just build up hours and have fun riding no matter where it is or what intensity it is." She noted a change to her training following her rehabilitation. "I would never seek out the hilly rides when I was actually training, and now I am wanting to do hills and wanting to ride and just be out there." She had "decided to focus on the road for this year... and get strong again and continue to love the bike and just keep going with it."

To the medical community, returning to sport encompasses the completion of rehabilitation and regaining the physical prowess to participate in athletic pursuits. However, this perception is different for elite athletes. For them, returning to sport requires the return to the sport they were injured at. P1 stated, "I feel like I am back to sport as far as my focus and commitment to it, but once I race then it will be solidifying that I am back." Similarly, P4 recounted, "I am definitely back to sport, where I want to be in sport – no, I am not there yet. ... I still feel that I have to jump. I don' t think that is going to change."

Benefits to Others

Suggestions from Athletes

There are things to be learned from every athlete's rehabilitation, and these factors benefit other athletes and provide opportunities for the health care team to improve the delivery of care to injured athletes. Unanimously, each athlete in this present study offered suggestions for the rehabilitation process that will benefit others. P1 advised, "ask lots of questions, be sure for yourself. Don't rely wholly on what others say." P2 stated:

> The people we are dealing with just have to keep being positive about it but also realistic. ... I don't know when [the advice] sinks in... I think you have to keep saying it and have it constantly there so when the athlete is finally where they are able to actually use what you are saying it is still there and still being said, and constantly being said.

P3 stressed the importance of psycho-emotional recovery along with physical recovery:

> You injure your physical body, like I see it as your physical being. ... You are hurting, you have injured your physical body. But at the same time, psychologically it messes you up too. Like there is a psychological damage that is done when you go through injury, when you are pulled out of competition and have to deal with this process of rehab and I think there is definitely not enough emphasis put on that. Because you have both parts injured but the only part being attended to is really your physical part and so the psychological part is kind of left out a bit.

P4 advised that "nobody every really asks about emotions or any of that sort of thing, and, of course, that means a lot to people, the fact that their physician actually cares about their well being rather than just the particular injury." He also related, "the most important thing is to have somebody that you can always talk to and ask questions of." P5 suggested that the health care team needs to provide more guidance in terms of expectations for the injured part following the resumption of play:

> I didn't know what to expect when I got [the cast] off. I thought maybe my wrist would just be small, I thought that it wouldn't hurt, that I would be able to just go to the gym, be a bit weak... but I didn't think that it would be painful. It would have helped knowing what to expect, knowing what I was going to be getting into.

Chapter 5:

Discussion and Implications of the Findings

What is the psycho-emotional experience of major injury for a high performance athlete? How can we better understand the meaning and impact an athlete ascribes to his/her experience with athletic injury? How can a better understanding assist in providing better, more holistic approaches to caring for an injured athlete? The discussion of these questions follows directly from the data presented. The psycho-emotional experience of major injury was presented as descriptive model which encompasses three periods of recovery from injury: early rehabilitation, mid-rehabilitation and late rehabilitation, which included returning to sport.

During the early phase of recovery, which included the first one third of the expected recovery time, athletes experienced issues that were internal to themselves, and therefore these factors are modifiable. Athletes also experienced issues that were external to them as an athlete, which therefore are un-modifiable. Self talk was utilized by the athletes to help with coping with the injury. This internal dialogue helped the athletes to persevere through the difficult early period of rehabilitation which is fraught with pain and negative emotions. Because injury often seems completely random and subsequent to factors which are beyond the athletes' control, there is a need for the athletes to rationalize the injury, in an attempt to give it meaning and purpose. With this new rationalization in place, the athletes can draw on their innate abilities of self-reliance to find ways to cope with the many new challenges that injury and the rehabilitation will present. This idea was suggested by Heil (1993) in his affective cycle of injury. He presented the recovery process as a cycle of progressing and relapsing times of distress, denial and determined coping. In the current study, the process of

recovery for the participants was, overall, a positive and progressive process, but there were periods of advancement and relapses throughout the entire rehabilitation. The current study fails to support the stage models of recovery which propose a linear and sequential recovery process from athletic injury.

Brewer (1994) found that athletes' emotional responses to injury and recovery initially were negative and progressed towards positive emotions as recovery advanced; he also found negative emotions to be pervasive throughout the recovery period. In this study too, throughout the early period of recovery and into the advanced time of recovery, the athletes' emotions covered an entire spectrum of negative and positive emotions. In the early rehabilitation period, the emotions were predominantly negative, including defensiveness, disbelief, fear, anger, doubt, jealousy, disappointment, frustration, denial and depression. Despite this, the athletes made concerted efforts to look for positive experiences that encouraged more favorable emotions such as hope and enjoyment. This aspect of the diverse and broad range of changing emotions throughout the recovery process is highlighted well in this qualitative study. The quantitative studies highlighted in chapter 2 fail to illustrate this expansive range of emotion.

Early rehabilitation from injury is a challenging time because the insult of the injury and possible surgical interventions to alter the injured anatomy produce a time of significant pain and imposed limitations of function. These experiences caused significant feelings of loss for the athletes. This time period highlighted the loss of athletic ability, but it played a more significant factor in affecting activities of daily living. The impact to the athletes' ability to be productive in basic daily functions heightened this sense of loss in the early recovery period and fostered a sense of frustration and negative mood states. The pain from the injury and rehabilitation, and sleep disturbances at this time confounded the psycho-emotional issues

of the injury with physical somatic complaints. This is as if 'adding insult to injury' and magnified the negative experience.

It must be understood that for many, if not most athletes, weight, fitness and body image are a paramount concern to their psyche and sense of self. In his study of healthy adjustment to career ending injuries, Brown (1998) established that maintaining the ability to be physically active was of vital importance to healthy adjustment from injury. The current study also highlighted the distress imposed by the alteration in activity level that the injury and requisite recovery required. Finding a way to maintain some level of activity and advice for adjusting dietary intake was crucial for minimizing this psycho-emotional issue.

Beginning very early, in the first period of rehabilitation, the current sample of high performance athletes began a process of self discovery as a means of coping with the injury and expected recovery. The early recovery period was a time to reflect on the meaning of sport in the lives of the athletes. They controlled and managed their emotions by focusing on realistic perspectives and reaffirming to themselves and to others their expectations for recovery and eventual return to sport. This is described by Lazarus and Folkman (1984) as emotion-focused coping. The fear of re-injury upon resumption of activity was a common stressor in the early period of recovery, presumably because the experience of the injury, the pain and the losses remain fresh in the mind of the athlete. Flashbacks to, and replaying of the images of the injury in the mind of the athlete were common and caused psychological distress to the athlete in the early period of rehabilitation. But the participants described this as an experience that helped them to come to terms with what happened and to learn more adaptive ways of considering the injury and its effects. This idea reflects the findings of Bianco, Malo and Orlick (1999) who discovered that injury is stressful for athletes and that personal and situational factors affected the experience of injury and rehabilitation. They

found that progress was affected by cognition, and that the injury and imposed recovery affects the athletes' cognitive, emotional and behavioral responses.

Issues that are internal to the athlete are potentially modifiable. This suggests that the psycho-emotional experience of major injury can be altered by addressing these modifiable issues. The health care team, which is comprised of the physicians and surgeons, the therapists and counselors who work with the athlete during the period of recovery, can play a more integral role in the psycho-emotional rehabilitation of injured high performance athletes, and ease their experience with recovery. More consideration may need to be given to controlling the physical and somatic complaints associated with injury. Pain control should be optimized and medical assistance for sleep disturbances should be considered, with advice on sleep hygiene and possibly short term use of medication. The sport medicine physician is well qualified to address issues of diet, alternate exercise and maintenance of fitness with the injured athlete. Further, physicians, surgeons and physical therapists should anticipate that the athlete will have many questions which pertain to the injury, surgery and the expected recovery process. The athletes need to have their questions answered in a fashion that is satisfactory to their understanding and complies with fully informed consent for the rehabilitation they will undertake. An environment should be fostered where the athlete is enabled to question his/her health care team member and can be assured that necessary, and correct information will be provided. This will allay many fears and anxieties that arise over the unknown, and ease the psycho-emotional experience with major athletic injury. It is imperative that the health care team members fully understand the meaning of sport to the athlete and the implications of the injury on his/her career. A better understanding of the athlete as a person and the non-athletic interests and goals he/she fosters will enable the health care team member to foster appropriate expectations and perspectives for the injury, the rehabilitation and the eventual return to sport. Albinson and Petrie (2003) suggested that

because of the frequency of contact with health care team members an athlete experiences while injured and undertaking a rehabilitation, athletes would benefit from receiving greater support and assistance with managing psychological distress from these important people, which would likely enhance the rehabilitation and recovery process.

A sport psychologist or counselor can play a pivotal role in the psycho-emotional experience of major injury and greatly assist in the complete rehabilitation of the athlete. Physicians, surgeons and physical therapists too can learn the skills to communicate with injured athletes to assist in improving the athletes' perceptions of loss, altering mood states and allaying the psychological concerns that arise with injury and rehabilitation. With the loss of participation in the sport, the athlete is possibly faced with a lot of new, spare time. Teaching mental skills so that the athlete may become engaged in beneficial, productive and meaningful actions that will benefit the psycho-emotional rehabilitation can be a pivotal experience towards the entire recovery process and eventual return to sport.

External factors are those that the athlete does not have direct influence over, and they are therefore un-modifiable for the athlete. However, others involved in the athletes' recovery, such as the health care team, friends and family, teammates and coaches can alter the external factors and improve the experience of injury and rehabilitation for the athlete. The time in the season an injury occurs is a factor beyond anyone's ability to modify. For each of the athletes in this study, the injury occurred at a critical time in the season. P1 and P2 missed critical international races and the chance to race at the World Championships. P3 was injured at the first game of an eight week football season and he missed six of his team's eight games. P4's injury prevented him from competing at the Canadian championships and has curtailed all of his off season training for a one year period. P5 fractured his wrist late in his team's season and was unable to play with his team at the Canadian championships. Because

this is an un-modifiable factor, the coping skills of the athlete and the response from others plays an important role in the recovery from injury.

Other people were integral to the rehabilitation from injury. Expression of care and concern buoyed spirits and gave cause for continuing on when athletes were feeling down. Family and friends were pivotal coping resources athletes utilized in the early recovery period. Gould and colleagues (1997a) determined that athletes who perceived fortunate medical care and ideal rehabilitation opportunities experienced less distress with injury and recovery. In the current study, interaction with the health care team remained an important factor, but for much of this experience, control is beyond the grasp of the athlete. Referrals to specialist physicians, surgeons, councillors and therapists are made based on expertise and experience. Personality issues or styles of practice may be contrary to the expectations of the athlete and this may affect the interaction with the medical team. Too, a fortunate experience with a member of the health care team may cultivate an enriched psycho-emotional recovery from the injury.

A second factor which is completely outside the grasp of the athlete is the unanticipated factors. Most all athletes will be injured during the course of a sporting career, but very few athletes prepare for injury, and expect to have to cope with the difficulties that may arise during the recovery process. As well, high performance athletes have fostered a sense of control and dominance over most aspects of their training and their lives. Unfortunately, much about injury is beyond being about factors which one is able to control. The feelings of lack of control that injury produces are unsettling to the athlete and this impairs the psycho-emotional experience of injury in the early period of recovery.

Although these listed factors are, for the most part, un-modifiable for the athlete, there are important changes that can be made with these issues which will refine the experience of injury and rehabilitation. Of paramount importance is the interaction of the athlete with the

health care team. Although many athletes have frequent and comfortable interaction with members of the health care team (doctors, therapists) it must be pointed out that many athletes feel uncomfortable and intimidated by the need to seek medical advice. Knowledge and understanding of the pathology, or a lack of knowledge and understanding may create significant obstacles to the delivery of optimum medical care. The health care team members must foster and environment where the athlete feels cared for and is able to ask questions. An attempt must be made to merge the objectives of the athlete with the objectives of the health care professional for the interaction(s). An awareness must arise that athletes will have many questions, and that the fears and anxiety are relieved with understanding the answers to the questions that he/she will pose.

Interaction with other people in the athletes' social and training circles will affect the recovery process. This may be a positive or a negative experience, depending on how the athlete perceives the interactions and on the needs of the athlete. The athletes should be encouraged to verbalize the psycho-emotional issues they are coping with and actively seek the emotional support that is needed from the other people involved.

It would seem that any athlete competing at a high performance level will have been training for a number of years and had a number of experiences with injury, whether it is small and insignificant, or more major. Yet traditional training approaches place little emphasis on the psychology of sport and the mental game. A more holistic approach to training that encompasses sport psychology and mental skills development may help an athlete to prepare for eventual injury by fostering adaptive coping skills, and by learning to 'expect the unexpected'. Too, this experience with sport psychology may improve the perspective and outlook of the athlete who is experiencing issues pertaining to the injury and recovery which are beyond his/her control. The athlete must learn to expect the unexpected and to foster and practice ways to cope (Folkman, 1992; Folkman & Lazarus, 1988b; Jones,

2003; Lazarus & Folkman, 1984) with unexpected obstacles in the training and competition process.

The period of mid-rehabilitation was a time of significant change with multiple psycho-emotional issues affecting the recovery from the injury. This was a time when negative internal factors gave way to positive and internal experiences for the athletes. The negative emotions of fear, frustration, impatience, loss and disappointment gave way to more productive and encouraging emotions of acceptance, confidence and improved realistic outlooks. McDonald and Hardy 1990) described a similar idea that recovery progresses from reactive and negative experiences to more adaptive and positive experiences. The athletes in the current study still experienced a number of unknown issues such as questioning the outcome of the injury and recovery, unanticipated setbacks and complications and having to make unexpected decisions, but in seeking the answers to these unknown factors they discovered a new meaning of sport in their lives, and an improved self-image and self perception.

Somatic issues of diet and fitness continue to have a significant affect on the psycho-emotional experience of major injury in an elite athlete. Despite many concerns, assistance or advice was not sought to allay the anxiety surrounding these issues.

Beginning at the mid-recovery period, the athletes regained a new sense of focus and purpose for their rehabilitation. The self-imposed expectations and timelines for the recovery process created a mindset that was very positive, but established a situation of disappointment when the milestones were not made, or fostered encouragement when the ability improved or was regained sooner than expected. This led to a need to continuously reassign perspective throughout the mid-recovery period.

Having interests outside of sport played an important role in distracting the athletes from the monotony of and the sometimes slow progression of rehabilitation. Distractions were a vital part of the recovery process.

As the later stages of the mid-recovery period advanced, benefits of the injury and rehabilitation became obvious. Improvements were made in training, insight and in personal relationships subsequent to the time spent focused on rehabilitation and recovery. This was a fortunate realization for the athletes in this study, and reflects the findings of Udry, Gould, Bridges and Beck (1997) of benefits that are brought about by injury and the necessary rehabilitation.

The role of others and the health care team continue to influence the recovery process of the elite athlete in the mid-rehabilitation period. Support from friends and family remained an integral coping strategy. Sharing a common experience with teammates and support from coaches was essential to foster the emerging confidence and improvements in recovery, and to help the athlete turn the corner to the final period of rehabilitation and returning to sport.

As the athlete progresses through the mid portion of the recovery from injury, the shift of issues from negative to positive is a strong factor, especially in light of the final phase of recovery and return to sport is entirely positive, demonstrating benefits to the athlete and to others. This suggests that fostering the movement from negative to positive in the rehabilitation process may ease the experience with injury. Negative emotions are expected, but they need not be encouraged. The health care team is in an opportune position to redirect athletes' thoughts and feelings to more positive emotions that will augment the recovery process. Specific referral to a sport psychologist or counselor may be of benefit, but often the athlete can discover this new meaning through self reflection and talking with others. Each of the athletes in this study commented on their enjoyment with being a part of this research,

and saw significant benefits to discussing the psycho-emotional issues they faced during the recovery period.

The issue with unknown factors is that they are unknown. However, much of this could be waylaid if the health care team was more diligent in ensuring that the athlete is fully informed of all possible resources, treatments, and skills, and the pro's and con's of all the options and any potential adverse effects. Awareness of these issues allows for at least a cursory consideration of potential unknown issues that may arise during the recovery. In the event that an unexpected outcome occurs, the athlete will be better able to cope, with less sense of being 'blind-sided' by complications and setbacks.

Fitness and dietary concerns remain a strong psycho-emotional issue throughout the early and into the mid-recovery period. Addressing this in the initial visit(s), questioning about this in subsequent visits and allowing the athlete to pose all questions in this regard will allay many anxieties and assist in the complete rehabilitation process.

An attempt should be made to clarify the athletes' timelines and personal expectations for the recovery process. In this study, each athlete was advised by his/her physician on an expected time to recover. Despite hearing these timelines, unanimously, each athlete expected to recover sooner than they were advised. This established for themselves goals and milestones that could not be met and set them up for feelings of frustration and failure. It should be expressed to athletes more clearly that the timelines that the health care team advises are not random numbers, nor are they necessarily different for inactive people when compared to active, athletic people. Despite hearing his doctor say it would be six to nine months to recover from the torn and reconstructed anterior cruciate ligament, P3 expected to have to spend less time in his recovery because of his athletic ability. This is an extremely common thought, that this study has shown, and which I experience daily in my clinical medical practice. Athletes need to understand that the timelines that the health care team

offers for recovery are based on pathology and physiology, which is the same for active and inactive people alike. Understanding this, and knowing that guidelines are not altered or amended to account for physical fitness and athleticism will foster more realistic expectations of the injured athlete for recovery.

The health care team plays a pivotal role in dispersing the requisite and correct information to athletes regarding injury, rehabilitation and return to sport. The nature of the relationship between the doctor or therapist and the athlete is often one of respect and authority. This vaulted position can be utilized more to accurately educate athletes on the aspects of the recovery process that he/she will likely encounter. Advising an injured athlete on the negative and positive aspects of the recovery, and the progression towards improved training, improved insight and improved relationships will help create a more favorable anticipation for the process. All athletes in this study, as well as in other studies (Gould et al., 1997a; Rose & Jevne, 1993; Udry et al., 1997) found there were benefits to being injured and needing to rehabilitate. Stressing this to athletes from the initial diagnosis of the injury and beginning of the recovery may assist in easing the psycho-emotional issues that accompany major physical injury.

The time of late rehabilitation encompassed the last third of the expected recovery period until the athlete returned to sport. This was a time of positive psycho-emotional experiences which resulted in personal benefits for the athlete as well as suggestions which will benefit the health care team. The athlete has learned personal growth through improved insight, new achievements, renewed enjoyment of sport and new personal challenges. Injury and the requisite rehabilitation has come to be viewed as an advantage. The time away from training and routine allows the athlete to explore other types of exercise and training which positively affect the sport-specific work they need to return to at the culmination of the recovery period.

Positive encouragement and comments from coaches and teammates, and friends and family continued to be an important psycho-emotional issue into the final period of rehabilitation. This helps to offset some of the positive anxiety that begins to surface as an athlete contemplates returning to sport. Occasionally lifestyle changes, from rehabilitation to training, need to be addressed as recovery is reaching a conclusion. The athletes need to be reminded of the fitness they have acquired and the preparedness they have been working on to return to sport. These findings are contrary to those determined by Shelley (1998) that athletes returning to sport continue to experience fear of re-injury with cautious and lingering feelings of doubt and being misunderstood.

Implications for the Health Care Team

This study was designed to reach a better understanding of the experiences of high performance athletes to major injuries. Brock and Klieber remind us that, "the clinicians' ability to identify those whose [psycho-emotional] illness experience will be most problematical and their anticipation of the shape that problematical experience may take should prompt interventions to modify the course of distress and lead to more rapid rehabilitation" (1994, p.27). A better understanding of the meaning a patient ascribes to his/her injury will enable the medical care team to better assist the patient's overall rehabilitation and expedite a successful return to sport. So, how can the better understanding that was presented in this research assist the health care team in providing a more holistic approach to the injured athlete? First, we must understand that psycho-emotional rehabilitation does not necessarily coincide with or continue from physical rehabilitation. The two aspects are distinct from each other, but may be addressed simultaneously during the recovery process. Recognizing that each athlete's injury experience is unique is important, but there are common experiences that can be affected or altered to improve the rehabilitation

process. We can better understand the meaning and impact an athlete ascribes to his/her injury experience by simply inquiring about it. More frequent follow-up visits or simply making more time in the course of a visit would enable the health care team to explore the psycho-emotional issues the athlete is coping with and will foster the recovery process. Howe points out, "Much can be done to make desirable outcomes more likely" (1999, p.182).

An awareness of the issues and factors that are important in the psycho-emotional experience of major injury will allow the health care team member to educate and better guide high-performance athletes through the injury and rehabilitation process. Table 2 lists suggestions for the health care team to consider when working with a high performance athlete who has sustained a major injury.

Contribution to the Literature

This study lends much to the current literature regarding the psychology of injury and the psycho-emotional experience of major injury in high performance athletes. The prospective nature of this study captured the experience of injury as it was occurring and was not subject to memory decay or an alteration of perspective that time and experience would impose. The participants in this study were males and females participating in different sports, who suffered with different injuries. Despite the variation of the participants, similar psycho-emotional experiences were described. This qualitative study has provided a more detailed and deeper understanding of the psycho-emotional experience of major injury than previous quantitative inquiry has explained. Efforts from the medical community caring for injured high-performance athletes can help to modify factors and ease the recovery process. Adding sport psychology training to the recovery process will augment the rehabilitation and can assist athletes in preparing for the un-modifiable factors that arise with training and injury, and with the injury recovery process itself. Preparation for unexpected and

Table 2: Athletes Suggestions for the Health Care Team

ISSUE	SUGGESTIONS
IMPROVE CLINICAL INTERACTIONS	- listen to the athlete - be sure the athlete is fully informed on treatment options, expectations, possible complications - inquire about the meaning of sport to the athlete - try to alleviate the athlete's fears or concerns - give accurate advice; don't 'sugar coat' what you have to say; be honest but firm - ask tough questions that force the athlete to consider more the impact of the injury/recovery - merge yours and the athlete's objectives - ensure awareness of appropriate time lines - help the athlete to set reasonable, attainable goals - follow up with the athlete more frequently - encourage and foster an environment where the athlete can ask questions - be a strong guide for the rehabilitation process - give specific and focused tasks as well as flexible ones - maintain a positive, but realistic approach to the injury and rehabilitation
IMPACT TO ACTIVITIES OF DAILY LIVING	- explain the expected encumbrance of the injury upon activities of daily living - offer suggestions to accommodate the imposed limitations
PSYCHO-EMOTIONAL ISSUES	- inquire about the psycho-emotional welfare of the athlete - refer the athlete for (sport psychological) counseling, encourage this aspect of rehabilitation concurrent with the physical rehabilitation - inquire about changes in the psycho-emotional experience of recovery - educate the athlete of what is known about the psycho-emotional issues of injury and rehabilitation - advise the athlete of benefits of injury and rehabilitation - discuss fears and concerns for re-injury

LIFESTYLE ISSUES	- encourage the athlete to maintain alternate activities to maintain health and fitness - encourage the athlete to remain involved with teammates, coaches and training sessions - encourage activities, interests and relationships outside of sport - advise the athlete on necessary dietary adjustments during the period of diminished or limited activity of rehabilitation
SOMATIC ISSUES	- adequately treat the pain of the injury and rehabilitation - assist the athlete in gaining restorative sleep with suggestions for sleep hygiene and/or medication

un-modifiable factors, and learning to 'expect the unexpected' will significantly and positively alter the high performance athlete's experience with major injury.

Directions for Future Research

This prospective study investigated the psycho-emotional experience of major injury for high performance athletes at a critical time in their competitive season. All of the athletes in this study experienced an injury which was typical for their sport. Very little research has been conducted into the experience of injury which is atypical for sport, or for the experience of illness affecting sport participation in high performance athletes. The present study highlighted the important role that unanticipated and un-modifiable factors play in the rehabilitation from injury. One could presume that injuries alien to sport or illness would produce more extreme psycho-emotional issues for an athlete since the unanticipated and un-modifiable factors may be magnified. These areas are ripe for future research.

The data presented in the present study reflect the participants' psycho-emotional stressors and concerns during their physical rehabilitation from injury. Attention and efforts were not

made by the participants in this study to seek out psychological assistance and rehabilitation during the recovery period. Repeating this study design with a cohort of participants and providing sport psychological training and rehabilitation concurrent with the physical recovery may alter the data and affect the outcome and well-being of the high performance athlete. This may offer further suggestions for the health care team to improve the injury experience. Such a study may bring more attention to the psycho-emotional experience of major athletic injury.

Much attention is paid to the high profile, high performance or the elite athlete in sport, and much research and investigation is conducted upon and with this group of athletes. However, the vast majority of injured athletes are not high performance athletes, rather they are recreational, and competitive athletes who are interested in health, fitness, and the pleasure and enjoyment of sport. This group of athletes deserves more inquiry into issues pertinent to and prevalent for them. This deficit in knowledge provides exceptional opportunities for future study.

Reflections of the Researcher

As a medical doctor practicing sport medicine with a diverse range of athletes, from the recreational 'weekend-warrior' to the elite Olympic athlete, it has been my experience that athletes are, in general, not fully rehabilitated from major injuries at the time of their return to sport. I make this comment because traditional rehabilitation programs focus almost exclusively on the physical and the biomedical issues the injury has incurred. In my clinical sport medicine practice, athletes frequently relate a hesitation and reluctance to return to sport at the culmination of the physical rehabilitation period.

Sport psychology, as a discipline, is very young and lacking in number of trained, qualified applied psychologists. Frequently I see medical doctors and physical therapists donning the hat of amateur sport psychologist to assist athletes through the psycho-emotional trials of recovery from injury. This study has shed some light on psycho-emotional factors of importance to high performance athletes and provides a guide as we muster our way through this troubled time in our patients' lives.

I have thoroughly enjoyed this experience of interviewing the five participants in this study. Although they were not my patients, I believe that sharing this experience with them, and allowing them the opportunity to express to me their thoughts, emotions, fears and concerns has helped their recovery. It has certainly educated me, as a sport medicine physician, to areas of my medical practice that I can improve upon and better serve my patients. I have always held a firm belief that education is the key to patients' compliance. I have always spent a great deal of time ensuring that my patients understand the problem they are presenting with, and fully understands the treatment and recovery process we will undertake together. Subsequent to this study, I have expanded my education of my patients to ensure that they understand that their athleticism and fitness will not alter the time it will take to mend. By expressing expected timelines in this manner, I have been seeing fewer experiences of frustration from my patients when they fail to meet unrealistic self-set goals and milestones.

I routinely address issues of diet, weight control and ways to maintain fitness with patients who will be undertaking rehabilitation from a major injury. I collaborate with the patient and his/her therapist to establish a rehabilitation program that is proposed as a training program. I encourage the athlete to consider rehabilitation as an alternate form of training which is important for their progression in the sport, and be vigilant for benefits they gain from the injury experience.

As I conclude all of my patient visits, universally I ask all my patients if there are any other questions, comments or concerns that we need to discuss, and I encourage them to keep a written record of questions that arise throughout the recovery process. I advise my patients to bring this list of questions with them to the next appointment(s). And, for athletes that have a significant injury which will require a prolonged time to rehabilitate, I ask to see the athlete in follow up seven to 10 days after the initial visit when the diagnosis is made and treatment planned. I have found that at the 10 day follow up visit the athlete has numerous questions, some which I addressed initially but the emotions of the experience caused him/her to not register my comments. At that 10 day follow up, I frequently see a wide range of emotions and I encourage the athlete to discuss this with me, or another person they are comfortable with.

This experience of exploring the psycho-emotional issues of major athletic injury in high performance athletes has enriched my practice of sport medicine and my delivery of care to athletes of all levels of participation. It is my hope that other health care providers can learn from my experience and utilize the suggestions that I have deduced from the experience of the five high performance athletes in this study.

References

Albinson, C.B., & Petrie, T.A. (2003). Cognitive appraisals, stress and coping: preinjury and postinjury factors influencing psychological adjustment to sport injury. *Journal of Sport Rehabilitation, 12,* 306-322.

Astle, S.J. (1986) The experience of loss in athletes. *Journal of Sports Medicine and Physical Fitness, 26,* 279-284.

Beck, A.T., Ward, C.H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychology, 4,* 561-571.

Bianco, T., Malo, S., & Orlick, T. (1999). Sport injury and illness: Elite skiers describe their experiences. *Research Quarterly for Exercise and Sport, 70,* 157-169.

Brewer, B.W. (2001). Emotional adjustment to sport injury. In J. Crossman (Ed.), *Coping with sport injuries: psychological strategies for rehabilitation* (pp. 1-3). New York: Oxford University Press.

Brewer, B.W. (1994). Review and critique of models of psychological adjustment to athletic injury. *Journal of Applied Sport Psychology, 6,* 87-100.

Brewer, B.W., Van Raalte, J.L., Linder, D.E., & Van Raalte, N.S. (1991). Peak performance and the perils of retrospective introspection. *Journal of Sport & Exercise Psychology, 13,* 227-238.

Brock, S.C., & Kleiber, D.A. (1994). Narrative in medicine: the stories of elite college athletes' career-ending injuries. *Qualitative Health Research, 4,* 411-430.

Brown, M.T. (1998). *Healthy adjustment following a career-ending athletic injury.* Unpublished Masters Thesis, University of Alberta, Alberta.

Brown, S.D., Albert, D., Lent, R.W., Hunt, G., & Brady, T. (1988). Perceived social support among college students: Factor structure of the Social support Inventory. *Journal of Counseling Psychology, 35,* 472-478.

Brown, S.D., Brady, T., Lent, R.W., Wolfert, J., & Hall, S. (1987). Perceived social support among college students: Three studies of the psychometric characteristics and counseling uses of the Social Support Inventory. *Journal of Counseling Psychology, 34,* 337-354.

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

Coopersmith, S. (1990). *SEI: self-esteem inventories.* Palo Alto, CA: consulting Psychologists Press, Inc.

Cote, J., Salmela, J.H., Baria, A., & Russell, S.J. (1993). Organizing and interpreting unstructured qualitative data. *The Sport Psychologist, 7,* 127-137.

Creswell, J.W. (1998). *Qualitative inquiry and research design. Choosing among five traditions.* Thousand Oaks, CA: Sage Publications Inc.

Crossman, J. (1997) Psychological rehabilitation from sports injuries. *Sports Medicine, 23,* 333-339.

Denzin, N.K., & Lincoln, Y.S. (Eds.). (2000). *Handbook of qualitative research.* Thousand Oaks, CA: Sage.

Dewar, A., & Horn, T.S. (1992). A critical analysis of knowledge construction in sport psychology. In T.S. Horn (Ed.), *Advances in sport psychology* (pp. 13-22). Champaign, Il: Human Kinetics.

Doyle, J.K. Introduction to interviewing techniques. (1998). In Worcester Polytechnic Institute Handbook for IQP Advisors and Students. [On-line]. Available: www.wpi.edu/Academics/Depts/IGSD/IQPHbook/ch11.html

Doyle, J., Gleeson, N.P., & Rees, D. (1998). Psychobiology and the athlete with anterior cruciate ligament injury. *Sports Medicine, 26*, 379-393.

Duda, J.L., Smart, A.E., & Tappe, M.K. (1989) Predictors of adherence in the rehabilitation of athletic injuries: An application of personal investment theory. *Journal of Sport & Exercise Psychology, 11,* 367-381.

Evans, L., & Hardy, L. (1995). Sport injury and grief responses: A review. *Journal of Sport & Exercise Psychology, 17,* 227-245.

Faris, G.L. (1985). Psychological aspects of athletic rehabilitation. *Clinics in Sports Medicine, 4,* 545-551.

Fennema, K., Meyer, D.L., & Owen, M. (1990). Sex of physician: Patient's preference and stereotypes. *Journal of Family Practice, 30,* 441-446.

Fisher, A.C., Domm, M.A., & Wuest, D.A. (1988). Adherence to sports injury rehabilitation programs. *Physician and Sport Medicine, 1988, 16*, 47-51.

Flick, U. (1998). *An introduction to qualitative research.* London: Sage Publications Inc.

Folkman, S. (1992). Making the case for coping. In B.N. Carpenter (Ed.), *Personal coping theory, research, and application* (pp. 31-46). Westport, CT: Praeger.

Folkman, S., & Lazarus, R.S. (1988a). *Ways of Coping Questionnaire: sample set, manual, test booklet, scoring key.* Palo Alto, CA: Consulting Psychologists Press.

Folkman, S., & Lazarus, R.S. (1988b). Coping as a mediator of emotion. *Journal of Personality and Social Psychology, 54,* 466-475.

Freedman, K.B., Glasgow, M.T., Glasgow, S.G. & Bernstein, J. (1998). Anterior cruciate ligament injury and reconstruction among university students. *Clinical Orthopedics and Related Research, 356,* 208-212.

Glasser, B., & Strauss, A.L. (1967). *The discovery of grounded theory: Strategies for qualitative research.* London: Wiedenfield and Nicolson.

Gordon, S. (1986, March). 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.

Gould, D., Udry, E, Bridges, D., Beck, L. (1997a). Coping with season ending injuries. *The Sport Psychologist, 11,* 379-399.

Gould, D., Udry, E., Bridges, D., & Beck, L. (1997b). How to help elite athletes cope psychologically with season-ending injuries. *Athletic Therapy Today, 2,* 50-53.

Gould, D., Udry, E., Bridges, D., & Beck, L. (1997c). Stress sources encountered when rehabilitating from season-ending ski injuries. *The Sport Psychologist, 11,* 361-378.

Grove, J.R., Hanrahan, S.J., & Stewart, R.M. (1990). Attributions for rapid or slow recovery from sports injuries. *Canadian Journal of Sport Sciences,* 15, 107-114.

Hannin, Y.L. (Ed.). (2000). Emotions in sport. Champaign, IL: Human Kinetics.

Hardy, C.J., Richman, J.M., & Rosenfeld, L.B. (1991). The role of social support in the life stress/injury relationship. *The Sport Psychologist, 5,* 128-139.

Heil, J. (1993) *Psychology of sport injury.* Champaign, Il., Human Kinetics.

Howe, M.J.A. (1999). *The psychology of high abilities.* New York: New York University Press.

Janesick, V.J. (2000). The choreography of qualitative research design. In N.K. Denzin & Y.S. Lincoln (Eds.). *Handbook of Qualitative Research* (pp.379-400). .Thousand Oaks, CA: Sage.

Jones, M.V. (2003). Controlling the emotions in sport. *The Sport Psychologist, 17,* 471-486.

Junge, A. (2000). The influence of psychological factors on sports injuries. Review of the literature. *The American Journal of Sports Medicine, 28,* S10-S15.

Kubler-Ross, E. (1969). *On death and dying.* New York: Macmillian.

Kvale, S. (1996). *Interviews an introduction to qualitative research interviewing.* Thousand Oaks, CA: Sage Publications.

LaMott, E.E. (1994). The anterior cruciate ligament injured athlete: the psychological process. (Doctoral Dissertation, University of Minnesota, 1994). *Dissertation Abstracts International, 55(11),* 9447.

Lampton, C.C., Lambert, M.E. & Yost, R. (1993) The effects of psychological factors in sports medicine rehabilitation adherence. *Journal of Sports Medicine and Physical Fitness, 33,*292-299.

Lazarus, R.S., & Folkman, S. (1984). *Stress, appraisal and coping.* New York: Springer.

Leddy, M.H., Lambert, M.J, & Ogles, B.M. (1994). Psychological consequences of athletic injury among high-level competitors. *Research Quarterly for Exercise and Sport, 65,* 347-354.

Lincoln, Y.S., & Guba, E.G. (1985). *Naturalistic inquiry.* London: Sage.

Lynch, G.P. (1988). Athletic injuries and the practicing sport physiotherapist: Practical guidelines for assisting athletes. *Sport Psychologist, 2,* 161-167.

Martins, R. (1987). Science, knowledge and sport psychology. *The Sport Psychologist, 1,* 29-55.

May, J.R., & Sieb, G.E. (1987*). Athletic injuries: psychosocial factors in the onset, sequelae, rehabilitation and prevention* (pp.157-186). In J.R. May, & M.J. Asken. (Eds.). Sport Psychology. New York: PMA Publishing.

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., & Eastman, N.W. (1994). Athletic injury and self diminution. *The Journal of Sports Medicine and Physical Fitness, 34,*299-304.

McNair, D.M., Lorr, M., & Droppleman, L.F. (1981). *Manual for profile of mood states.* San Diego: Educational and Industrial Testing Service.

Meyers, M.C., Bourgeios, A.E., Stewart, S., & LeUnes, A. (1992). Predicting pain response in athletes: development and assessment of the Sport Inventory for Pain. *Journal of Sport & Exercise Psychology, 14,*249-261.

Morrey, M.A. (1997). A longitudinal examination of emotional response, cognitive coping and physical recovery among athletes undergoing anterior cruciate ligament reconstructive surgery. (Doctoral dissertation, University of Minnesota, 1997). *Dissertation Abstracts International, 58(1-B),* 0130.

Morrey, M.A., Stuart, M.J., Smith, A.M., & Wiese-Bjornstal, D.M. (1999). A longitudinal examination of athletes' emotional and cognitive responses to anterior cruciate ligament injury. *Clinical Journal of Sport Medicine, 9,* 63-69.

Murphy, G.M., Petipas, A.J., & Brewer, B.W. (1996). Identity foreclosure, athletic identity and career maturity in intercollegiate athletes. *The Sport Psychologist, 10,* 239-246.

Nideffer, R.M. (1983). The injured athlete: Psychological factors in treatment. *Orthopedic Clinics of North America, 14,* 373-385.

Pargman, D. (Ed). (1999). *Psychological bases of sport injuries* (2nd ed.). Morgantown, WV: Fitness Information Technology, Inc.

Pearson, L., & Jones, G. (1992). Emotional effects of sports 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,* 1-10.

Petipas, A., & Danish, S.J. (1995). Caring for injured athletes. In S.M. Murphy (Ed.), *Sport psychology interventions* (pp. 257-259). Champaign, Il: Human Kinetics.

Petrie, T.A. (1993). Coping skills, competitive trait anxiety, and playing status: Moderating effects on the life stress-injury relationship. *Journal of Sport & Exercise Psychology, 15,* 261-274.

Roid, G.H., & Fitts, W. (1988). *Tennessee Self-Concept Scale (TCSC): Revised manual.* Los Angeles: Western Psychological Services.

Rose, J., & Jevne, R.F.J. (1993). Psychosocial processes associated with athletic injuries. *The Sport Psychologist, 7,* 309-328.

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

Rotella, R.J. (1985). The psychological care of the injured athlete. In L.K. Bunker, R.J. Rotella, & A.S. Reilly (Eds.), *Sport psychology: Psychological considerations in maximizing sport performance* (pp.273-287). Ann Arbor, MI: McNaughton and Gunn.

Rotella, R.J., & Heyman, S.R. (1993). Stress, injury and the psychological rehabilitation of athletes. In J.M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (2nd ed., pp.338-355). Mountain View, CA: Mayfield.

Shelbourn, K.D., & Fould, D.A. (1995). Timing of surgery in acute anterior cruciate ligament tears on the return of quadriceps muscle strength after reconstruction using an autogenous patellar graft. *American Journal of Sports Medicine, 23*,686-689.

Shelly, G.A. (1998). The lived experience of athletic injury: a phenomenological study. (Doctoral dissertation, University of Utah, 1998.) *Dissertations Abstracts International, 58(12-A),* 4557.

Smith, A.M., Scott, S.G., & Wiese, 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., Milliner, E.K., O'Fallon, W.M., & Crowson, C.S. (1993). Competitive athletes: Preinjury and postinjury mood state and self-esteem. *Mayo Clinic Proceedings, 68,* 939-947.

Sparkes, A.C. (1998). Validity in qualitative inquiry and the problem of criteria: Implications for sport psychology. *The Sport Psychologist,* 12, 363-386.

Speilberger C.D., Gorusch, R.L., & Lushene, R.E. (1970). *The State Trait Anxiety Inventory Self-Evaluation Questionnaire.* Palo Alto, CA: Consulting Psychologists Press.

Stake R.E. (2000). Case studies. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of Qualitative Research* (pp.435-454). Thousand Oaks, CA: Sage.

Sternberg, R.J., Wagner, R.K., Williams, W.M., & Horvath, J.A. (1995). Testing common sense. *American Psychologist, 50,* 912-927.

Sternberg, R.J. (1997). The concept of intelligence and its role in lifelong learning and success. *American Psychologist, 52,* 1030-1037.

Strahan, R., & Gerbasi, K.C. (1972). Short homogeneous versions of the Marlow-Crowne Social Desirability Scale. *Journal of Clinical Psychology, 28,* 191-193.

Taylor, J., & Taylor, S. (1997). *Psychological approaches to sports injury rehabilitation.* Gaithersburg, MD: Aspen Publication.

Udry, E. (1997). Coping and social support among injured athletes following surgery. *Journal of Sport & Exercise Psychology, 19,* 71-90.

Udry, E., Gould, D., Bridges, D., & Beck, L. (1997). Down but not out: Athlete responses to season-ending injuries. *Journal of Sport & Exercise Psychology, 19,* 229-248.

Wagner, R.K. (1987). Tacit knowledge in everyday intelligent behavior. *Journal of Personality and Social Psychology, 52,* 1236-1247.

Wasley, D., & Lox, C.L. (1998). Self-esteem and coping responses of athletes with acute versus chronic injuries. *Perceptual and Motor Skills, 86,*1402.

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

Wiese, D.M., & Weiss, M.R. (1987). Psychological rehabilitation and physical injury: Implications for the sports medicine team. *The Sport Psychologist, 1,* 318-330.

Wiese-Bjornstall, D.M., Smith, A.M., Shaffer, S.M., & Morrey, M.A. (1998). An integrated model of response to sport injury: Psychological and sociological dynamics. *Journal of Applied Sport Psychology, 10,* 46-69.

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.

Williams, J.M. (Ed.). (1998). *Applied sport psychology. Personal growth to peak performance* (3rd ed.). Mountain View, CA: Mayfield Publishing Company.

Appendix 1: Semi-Structured Interview Guide

Preamble/Introduction to the Interview:

I want to thank you for agreeing to participate in this research with me. I am trying to gain a better understanding of the range of the thoughts, feelings, fears, and behaviors that athletes experience when they sustain a major injury and need to undergo rehabilitation. When I was younger I was a competitive figure skater, and I sustained an injury that kept me off the ice for 6 weeks. This injury caused me to miss a number of competitions and test-days and delayed my progress in the competitive side of figure skating. When I work with injured athletes now, I rely on my personal experience with injury when I am trying to understand the meaning this may have for the patients I treat. However, mine is not the only experience, and your telling me how you experience this injury will help me to better understand the impact injury has on you. Ultimately I hope to understand this well enough that I can make recommendations for other members of the medical care team who treat injured athletes, and who may not have been athletes themselves, so that we can provide better care to injured athletes.

Personality Insight:

If someone were to write a character sketch about you, how would they describe you?

How do you usually cope with stressful situations?

Getting Injured:

Describe your injury and how it happened.

Can you recall what you were thinking/feeling at the moment the injury occurred?

At what stage of your career were you when you were injured?

Prior to your injury what sport-related goals and dreams did you have?

What is your prior sport-injury history?

Acknowledging the Injury:

Describe your emotional response following the injury. (right at the time, the next day, week, month, etc.)

What was going on in your mind when you were first told: a) the diagnosis, b) the treatment, and c) the expected recovery/rehabilitation?

Do you consider this a major or severe injury? When did you realize the severity of the injury?

Did you come to grips with the severity of the injury and the required treatment and rehabilitation? How?

Can you tell me about your emotional response to this injury?

Can you describe your behavior after you realized the severity of the injury?

Did you have any particular dominant thoughts following the injury? (positive/negative, rational/irrational)

Did your thoughts, emotions and behavior change as you progressed in your rehabilitation?

Did you have any difficulties in your recovery? How did you deal with them?

Dealing with the Impact

How did you cope with your injury and the required rehabilitation?

What were your expectations for recovery?

How was the reality of your recovery different from your expectations?

What role did significant others play in your coping with the injury and your recovery? Who was particularly helpful? Did anyone make the process more difficult?

Were you willing/able to discuss your injury and the implications with anyone?

How did your injury affect your relationships with others (teammates, coaches, parents, friends…)?

Did your injury affect your perception of "who you are"? Has your image of yourself changed since your injury? How?

Achieving Physical and Psychological Outcome (the Lessons)

How do you feel about returning to sport? Physically? Psychologically?

What meaning has injury had on your life?

What have you learned about yourself since/because of your injury?

Do you have any advice/recommendations for someone recovering from a similar injury?

Is there anything you feel that would be important for me to know to better understand the thoughts, feelings, fears and behaviors you experienced following your injury?

Appendix 2: Demographic Questionnaire

Name: _____ Male / Female

Current Age? _____ City/town of residence? _____

What do you consider you main/prime sport(s)? _____

In what sport did your current injury occur? _____

Level of competition: international / national / provincial / collegiate / professional

How many years have you been playing the sport you were injured in? _____

What is your current injury? _____

When did your current injury occur? Early season / Mid season / Late season / Playoffs

How long were you told you can expect to be "off" and in rehabilitation before you can return to competition? _____

What is occurring in your competitive season now that is critical for you to be injured and not able to play? _____

Have you been injured before at a time that was critical in the season? YES / NO