

Social Support Influences on Recovery from Sport Injury

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This thesis is dedicated to my mother, Priscilla Bianco, who gave me

life

and

the freedom to live it.

Thank you for loving me and believing in me.

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TABLE OF CONTENTS

CHAPTER 1

Introduction	1
Statement of the Problem	5
Relevance of the Study	5

CHAPTER 2

Review of Literature	7
Incidence of Sport Injuries	7
The Treatment of Sport Injury: Historical Considerations	9
The Psychological Impact of Sport Injury	15
Emotional Responses to Sport Injury	18
Cognitive Approaches to Sport Injury	26
Injury Viewed as a Loss	27
Grief Models of Adjustment	32
Injury Viewed as a Stressor	37
Lazarus and Folkman's Theory of Stress	38
Conservation of Resources Stress Theory	42
Cognitive Appraisal Models	46
Clinical Model	47
Psychosocial Models	50
Behavioral Outcomes	55
Consolidating the Research Findings	61
Social Support	64
Defining Social Support	64
Functions of Social Support	67
Measurement Issues	70
Network models	71

Received Support Models	73
Characteristics of the Support Provider	74
Support Recipient's Coping Skills	75
Perceptions of Received Support	79
Perceived Support Models	80
Chapter Summary	84
 CHAPTER 3	
Methodology	88
Fundamental Considerations	89
Research Orientation and Underlying Assumptions	90
Researcher Preparation	97
Pilot Interviews	100
Study Participants	105
Interview Setting	106
Interview Protocol	109
Data Preparation	111
Data Analysis	112
Preliminary Remarks on Qualitative Analysis	112
Interrogating the Data	116
Validating the Current Study	122
 CHAPTER 4	
Presentation of results	125
Setting the Stage	129
Injury Phase	131
Rehabilitation Phase	155
Return to Sport Phase	196

Summarizing Social Support	211
Advice and Recommendations	213
CHAPTER 5	
Discussion	227
Injury Phase	228
Rehabilitation Phase	237
Return to Sport Phase	257
Epilogue	265
References	266
Appendices	281
Appendix A : Completed Contact Sheet	281
Appendix B : Information Sheet	283

LIST OF TABLES AND FIGURES

TABLES

1. Demographics on study participants	107
2. Sources of information about injury	144
3. Social support received throughout the course of injury	212
4. Comparison of the stresses of injury (Heil, 1993 and the present study)	239

FIGURES

1. A conceptual model of the coping responses in injury and rehabilitation	17
2. The affective cycle of injury	36
3. Appraisal and coping model	39
4. Revised model of ecological congruence	44
5. The stresses of sport injury	48
6. Examples of cognitive distortions in sport injury	49
7. Andersen and Williams' (1988) model of stress and athletic injury	51
8. Grove and Gordon's (1992) adaptation of the above model	52
9. Operational model of the psychological response to athletic injury	53
10. Taxonomy of social support types	66
11. Qualitative research types according to research interest	91
12. Interview guide	103
14. Qualitative analysis as a circular process	113
15. Sport injury process model	127
16. Sport injury process model - injury phase	132
17. Sport injury process model - rehabilitation phase	157
18. Sport injury process model - return to sport phase	198

ABSTRACT

Although social support has been recognized as an important coping resource in the psychological adjustment to injury and illness, the possible benefits of social support in recovery from sport injury have received minimal attention. The present study, therefore, set out to investigate the role of social support in recovery from sport injury. In open-ended interview sessions, 12 current and former members of the Canadian Alpine Ski Team, who had sustained serious injuries, discussed their perceptions of the social support received during recovery and its effect on coping with injury. Inductive analyses of interview transcripts revealed that the experience of sport injury was a process which spanned three phases: the occurrence of injury, treatment and rehabilitation, and the return to sport. The presence of social support during each of these stages contributed to enhanced coping manifested through increased motivation, better treatment adherence and a more positive outlook toward the injury and recovery. Support needs included emotional support, informational support and tangible support and were met by various members of the athletes' social support network. Identified as important sources of social support were: family and friends, medical personnel, current and former ski team members, coaches, and the team management. In addition to highlighting the breadth of the impact of social support and the number of potential support providers, the present findings suggest that increasing social support during recovery can be an effective psychosocial strategy in the treatment of sport injuries. The identification of support needs during specific periods in the sport injury process represents an important step in the development of such interventions. The current findings support the transactional view of social support and indicate that further investigation of this process can also be beneficial to the development of rehabilitation interventions.

INTRODUCTION

The Olympic maxim of “faster, higher, stronger” poses an interesting paradox for dedicated athletes who in their quest to overcome the physical and psychological challenges associated with sport are often exposed to situations where the success they are seeking is jeopardized by the threat of injury. Indeed, epidemiological reports (Millar & Adams, 1991) have confirmed a high incidence of sport injuries and indicate that injury rates tend to increase with the level of sport involvement, primarily due to increased exposure to risk. Despite the inherent danger associated with a number of sport activities, participation levels continue to rise. Sport injury, it would seem, has become an acknowledged part of athletic life (Smith, 1992).

Apart from constituting a public health concern with economic and social ramifications, sport injuries represent important setbacks in the careers of promising athletes and may be accompanied by varying degrees of psychological distress. Clinical (Heil, 1993) and empirical (Smith, Scott, & Wiese, 1990) reports have indicated that the response to injury may range from mild disappointment to severe depression and, in extreme cases, suicidal tendencies (Smith & Milliner, 1994). The psychological well-being of injured athletes is of particular concern since it is believed that emotional responses to injury may affect behavioral outcomes in rehabilitation such as motivation and treatment adherence, which are hallmarks of an efficacious recovery (Brewer, 1994; Heil, 1993).

Recovery from sport injury is wrought with setbacks and periods of little or no improvement and it is at these times that the athlete’s motivation and enthusiasm is challenged. Strategies reported as helping athletes deal effectively with injury and

overcoming motivational difficulties include: the use of effective goal-setting techniques, employing mental training skills, developing effective coping skills, learning about the injury, and the presence of social support (Heil, 1993; Ievleva & Orlick, 1991; Rosenfeld, Richman & Hardy, 1989; Wiese & Weiss, 1987).

The present study examined the role of social support with respect to the psychological well-being and behavioral outcomes throughout the course of rehabilitation of 12 international level skiers who had experienced and subsequently recovered from a serious sport injury. This study represents an effort to fill important gaps in the sport psychology literature by integrating the theoretical bases of behavioral medicine principles and applying them to the domain of sport injury. For instance, although social support has proven to be a valuable resource in coping with illness and injury in areas such as cancer treatment and cardiac rehabilitation (Hardy & Crace, 1991), it has received scant attention in the sport injury literature.

Among those studies which have included social support as a variable in their investigations of the psychological correlates of rehabilitation from sport injury, the results have been promising. For example, Hardy, Richman and Rosenfeld (1991) identified social support as a key component in optimal recovery from athletic injury. However, the question of the mechanisms accountable for the influence of social support remains to be addressed. In terms of research which has focused specifically on the role of social support in recovery from sport injury, one study addressed the issue from the perspective of sport physiotherapists (Ford & Gordon, 1993) while the other polled the opinions of elite coaches (Ford, 1991). Oddly, the perspective of injured athletes, who are the centre of interest in the

study of social support and sport injury, has been overlooked.

Clearly, there is a need for a more in-depth treatise of social support and its effects on rehabilitation from sport injury. Moreover, injured athletes must be given voice in an effort to fully elucidate the phenomena under investigation. A theoretical integration of work done in three closely related areas of psychological enquiry, cognitive-behaviorism, stress and coping, and social support research, served as the basis for the general research question guiding the present study, i.e., what is the role of social support in coping with the stresses of sport injury?

Essentially, cognitive-behaviorists ascribe a central role to thought processes and maintain that the way in which an event is perceived influences one's emotional response which, in turn, affects behavior. They further contend that these individual perceptions are influenced by beliefs (Ellis, 1962), expectations (Bandura, 1977), appraisals (Beck, 1976), and attributions (Weiner, 1974), and that change in behavior is achieved through the modification of cognitive processes (Meichenbaum, 1977).

Cognitive theory served as an underlying tenet guiding more contemporary work in stress and coping research which concerns itself with the impact of stress on health and well-being. A stressful event is described as one in which the perceived internal and external demands exceed an individual's personal and social resources (Lazarus & Folkman, 1984). Consequently, a person's ability to cope with a stressful event is determined by the net result of associated demands and coping resources. Effective coping, therefore, necessitates a reduction in perceived demands and an increase in resources, an objective which can be reached through the adoption of appropriate coping skills and the mobilization of social

resources (Avison & Gotlib, 1994).

Results from stress and coping research support the existence of three critical groups of mediating factors influencing the association between stress and mental health: coping responses, coping resources and social support (Avison & Gotlib, 1994). Social support refers to "... an exchange of resources between at least two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient" (Shumaker & Brownell, 1984, p.13), and is perceived as a potentially valuable resource which can aid stress resistance by providing a feeling of being cared for, fostering the belief that one is valued, loved and esteemed, and by providing a sense of belonging to a reciprocal network (Cobb, 1976; Hobfoll & Parris Stephens, 1990). Furthermore, in the case of a loss, supportive interactions may serve to provide resources that are lost or help to implement latent resources (Hardy & Crace, 1991). Thus, social support can contribute to emotional well-being by acting as a coping resource and a motivational mechanism (Albrecht, Burleson, & Sarason, 1992).

The fact that athletes experience psychological distress when injured suggests that injury is, indeed, a stressful event. Therefore, it is not unreasonable to expect that coping strategies which have been shown to be effective in dealing with a number of life stressors can also prove effective where sport injury is concerned. Taking this line of reasoning a step further, one can argue that social support which has been recognized as a valuable coping resource in times of stress can also be of benefit to injured athletes.

Statement of the Problem

Based on the fundamental assumptions that sport injury is a stressor and that social support can serve as an effective coping resource, this study set out to achieve the following objectives:

1. Identify the social support needs of skiers throughout the course of their recovery,
2. Determine if the athlete's perception of available or received social support affected their recovery.
3. Identify key sources of social support during the athletes' recovery.
4. Investigate the role of social support as a coping resource during recovery.
5. Make recommendations to athletes and their support providers regarding sport injury and social support.

To achieve these ends, a purposive sampling technique was used in which the study participants, international level skiers who had experienced and subsequently recovered from a serious injury, were selected for their knowledge and willingness to share their views and experiences. Furthermore, given the exploratory nature of the study and the inherent flexibility of open-ended interviewing, a qualitative method of inquiry and analysis was deemed most appropriate.

Relevance of the Study

In terms of its contribution to the knowledge base, this study was designed to address substantial gaps in the sport psychology literature with respect to the influences of social support on coping with sport injury, i.e., the lack of a comprehensive theory and the failure to

consider the perspectives of injured athletes. It was hoped that this gap would be narrowed somewhat by situating the study within a cognitive-behavioral framework and integrating theories of stress and coping and social support, and by giving voice to injured athletes.

From a more practical perspective, identifying the social support needs of injured athletes and how these may change over the course of recovery can generate meaningful insights which can be applied to the development and/or enhancement of treatment interventions, particularly with respect to mobilizing and benefitting maximally from social resources. In addition, the recent interest in the psychological aspects of athletic injury expressed by sport medicine professionals indicates that this is a particularly timely study and that recommendations generated from the study are likely to be well-received.

REVIEW OF LITERATURE

The literature discussed in this chapter serves as a means of expanding on ideas from the preceding chapter and assessing the current state of the knowledge base as it relates to the topic of sport injury and social support. Furthermore, it serves as a rationalization and justification of the study's objectives. The review of literature will parallel the sequence outlined in the introductory chapter and will begin with a brief reference to incidence rates and the treatment of sport injuries before launching into an in-depth discussion of the psychological impact of injury and its effect on behavioral outcomes in rehabilitation. The utility of grieving and stress and coping models as a means of explaining the psychological impact of injury will also be addressed and, finally, the review of literature will end with an examination of social support as an intervention strategy in recovery from sport injury.

In order to facilitate comprehension, salient points will be summarized at the end of each section and an overall summary recapitulating relevant findings will be provided at the end of the chapter.

Incidence of Sport Injuries

Sport-related injuries occur at all levels of sport participation and can range in severity from mere cuts and bruises to disabling spinal cord injuries. A survey conducted by Statistics Canada in 1987 revealed that 1.2 million sport-related accidents occurred within that year (Millar & Adams, 1991). Sports accidents were responsible for 29% of injuries to adults and 42% of all unintentional injuries to people aged 15 to 24 years. More than half (57%) of all sports injuries involved bruises, strains and dislocations. Fourteen percent of all sport injuries were fractures and both head/neck and spine/back injuries occurred in 8% of

sports accidents (Millar & Adams, 1991).

In terms of down-time, sports accidents in 1987 accounted for a total of 8.7 million activity-loss days and 1.5 million bed-disability or hospitalization days (Millar & Adams, 1991). Given that the cost of a hospital bed in 1987 was estimated at \$313/day, sport injuries accounted for a substantial dent in the Canadian health care budget or \$469.5 million. At a more personal level, injury is usually an unwelcome event which poses important limitations on athletic success, particularly when the injury is severe (Williams & Roepke, 1993).

Similar findings have emerged from the United States where epidemiological studies indicate that at least three to five million injuries occur annually within sports and recreation in America (Kraus & Conroy, 1984). The alarming incidence of sport injuries has sparked an awareness and concern for the health and well-being of athletes and has led to the adoption of injury reduction measures such as altering game rules within some sports and enforcing the use of protective gear (Mueller & Cantu, 1990).

Although the data gathering process used in the 1987 Statistics Canada survey did not isolate injury rates in the sport of skiing, crude estimates provided by the authors suggested that 21 of every 1000 skiers would sustain an injury (Millar & Adams, 1991). However, as Miller and Adams mentioned, available data were limited and no distinctions were made between different levels of sport participation. Therefore, it is possible that the injury rates reported underestimated true values, particularly with regards to athletes competing at elite levels where increased exposure to injury risk is an important factor.

Summary

Athletic injury is a problem that is far-reaching, representing both an economic burden and a substantial loss in playing time for competitive athletes. Furthermore, there is reason to believe that the problem may be more widespread than reported. As Millar and Adams (1991) pointed out, the figures cited may be conservative estimates since sport-specific injury rates convey some information about the prevalence of acute injury but little about the possible long-term damage that may be sustained from the chronic strain of certain sport activities.

The Treatment of Sport Injury: Historical Considerations

Until recently, consideration of the psychosocial correlates of sport injury and rehabilitation has received little attention both in theory and in practice. As a consequence, treatment interventions focused primarily on the physical aspects of injury. However, with the emergence of behavioral medicine over the last 30 years, a more integrated approach to treatment surfaced which addressed the physical, social and emotional dimensions of injury. Since sport medicine practices parallel those of general medicine, a brief review of the evolutionary forces which have shaped the present medical and psychological practices of the Western world is believed appropriate to situate the treatment of sport injury within its historical context.

Current writings on the treatment of illness and injury profess a multifaceted approach in which psychological and social factors are considered in terms of their impact on health and disease. While this "new" treatment approach is often touted as revolutionary and a departure from "traditional" methods, it must be remembered that present concerns in

psychology and medicine are deeply rooted in over 2500 years of history. In fact, the early writings of Hippocrates, the Father of Medicine, clearly suggested an appreciation for the interplay of psychological and social factors in the development and treatment of illness and disease (Christodoulou, 1987). Hippocrates wrote about "juices" or "humors" as the basis for a physiological model of the mind which served as a means of explaining mental states and events. For example, it was believed that an overabundance of bile could contribute to foul moods. In terms of social influences, Hippocrates adopted a community approach to healing in which continued involvement with friends and loved ones was encouraged as a means of speeding recovery (Christodoulou, 1987).

This psychosomatic tradition continued into the Byzantine period in which physicians described the relation between an important loss and the worsening of a tumor (Christodoulou, 1987). However, the emergence of Descartes' (1596-1650) dualist philosophy in the Renaissance period led to a paradigm shift which greatly influenced scientific thought and dominated medical and psychological research and practice for more than three centuries. Descartes viewed the mind and body as separate and distinct entities which functioned independently and were influenced by different factors. The mind engaged in abstract thought and language and was to be considered within the domain of philosophy, while the study of the physiological workings of the body was assigned to science (Eccles & Robinson, 1984).

In medicine, Cartesian dualism was expressed through the basic biomedical model which held that illness and disease were caused by external agents which disrupted the body's normal functions (Aldwin, 1994). The model was later expanded to account for the

disruptive effects of internal agents, such as faulty genes. Research focused on identifying the agents which damaged health and how that damage could best be repaired. The biomedical model had its counterpart in psychiatry in which psychological processes were reduced to their neurophysiological bases and “disorders” were treated accordingly.

Another driving force influencing scientific practices and enquiry were the empiricist doctrines of John Locke (1632-1704) and David Hume (1711-1776) who contended that learning was based on experience and occurred through direct associations between ideas which were derived from the senses (Rosenhan & Seligman, 1989). For instance, the consistent occurrence of A followed by B resulted in an association between A and B in which A was believed to be the cause of B. According to the empiricists, all knowledge was based on experience. This ideology gave rise to behaviorist theories which had as a fundamental assumption the direct connection between the environment and behavior. Acknowledging only that which was directly observable, cognitive processes came to be dismissed as epiphenomena (Skinner, 1971).

A modern outgrowth and reaction to the behavioral view was the cognitive school which asserted that a person’s thoughts influenced behavior and were thus of primary concern. According to the cognitivists, behavior modification was achieved through changing mental events, of which there were two types: short- and long-term. Short-term events consisted of expectations, including outcome and efficacy expectations (Bandura, 1977), appraisals or mental evaluations of experience (Beck, 1976), and attributions, the designation of causes concerning experiences (Weiner, 1974). Long term events included beliefs which could be either rational or irrational (Ellis, 1962).

In calling attention to the importance of mental life with respect to behavior, the cognitivists were responsible for blurring the then dominant mind/body distinction. In the field of medicine, the focus turned to the psychological and social aspects of health and well-being and the basic biomedical model came to be replaced by the biopsychosocial approach to illness and disease which acknowledged the complex interactive relationship shared by the mind, body and the social environment. Based on this multifaceted approach, psychological interventions in the treatment of illness have been developed which have proven successful in a number of areas, including those involving patients with heart disease, cancer patients and patients infected with the AIDS virus (Heil, 1993).

The blending of psychological and medical knowledge under this holistic model has had important implications with respect to the treatment of sport injuries which, until recently, had been predominantly physiologically oriented. Indeed, practitioners in the area of sport injury rehabilitation have begun to realize that by recognizing and addressing the psychological correlates of injury, behavioral aspects of recovery, such as motivation and treatment adherence, can be more successfully managed (Fisher, Domm & Wuest, 1988). Others, however, remain somewhat skeptical.

For example, results of a survey administered to 257 sport physiotherapists and 96 sport/athletic trainers in Australia, Canada and New Zealand indicated that respondents desired more information on the psychological aspects of sport injury (Ford & Gordon, 1995). It was reported that they also desired learning experiences in dealing with the athlete's psychological response as part of their training, and more continuing education courses and seminars designed to update their relevant psychological skills in dealing with

injured athletes, e.g., goal-setting, communication, counseling, confidence assertiveness, arousal control/anxiety management, and relaxation.

In a similar vein, 90% of the 482 certified athletic trainers who responded to a survey distributed in the U.S. concerning the psychological aspect of sport injury agreed that it was “relatively important” or “very important” (5-point Likert scale ranging from not important to very important) to treat the psychological aspect of an athletic injury (Larson, Starkey, & Zaichkowsky, 1996). Additionally, 85% of the sample believed that a course in sport psychology would be an important component in their education. However, they cautioned that, in order to be beneficial, the courses would have to have practical application to the profession of athletic training.

Brewer, Van Raalte and Linder (1991) surveyed 20 sport medicine physicians on the role of the sport psychologist in treating injured athletes. The findings indicated that although pain, stress/anxiety, anger and treatment compliance were among the most frequently observed adjustment difficulties among the injured athletes they treated, the physicians did not feel it appropriate to refer these athletes to sport psychologists for such conditions. In fact, the conditions deemed most appropriate for referral to a sport psychologist consisted of family adjustment issues and substance abuse difficulties. Among the physicians who had referred injured athletes to a sport psychologist, close to half had referred athletes for depression, stress/anxiety and substance abuse, while none had referred athletes for treatment noncompliance. As the authors pointed out, these findings were especially noteworthy considering that cognitive-behavioral techniques, such as those

advocated by Meichenbaum and Turk (1987) were available for the treatment of compliance problems.

While these results might suggest that, in comparison to sport physiotherapists and athletic trainers, sport medicine physicians may be less receptive to the notion of sport psychology in the treatment of injuries, there are a number of issues to bear in mind. First, the Brewer et al. (1991) study consisted of a relatively small sample, therefore, the results must be interpreted with caution. Additionally, as Larson et al. (1996) pointed out, athletic trainers are often the primary health care professional treating injured athletes. Thus, one can reasonably assume that their more frequent contact with the athletes affords them an opportunity to better appreciate the association between psychological functioning and behavioral outcomes in rehabilitation.

Methodological considerations notwithstanding, investigations of the opinions of sport medicine professionals have indicated that the input of sport psychologists is desired in the treatment of sport injuries. Furthermore, there exists a need to disseminate information about the psychological aspects of the recovery from injury to the sports medicine community. In addition to educating sport medicine practitioners, sport injury intervention programs could also benefit from empowering injured athletes by teaching them mental training skills and encouraging them to take a more active role in their recovery.

As Heil (1993) has pointed out, sport psychology and behavioral medicine share many commonalities, including a strong goal orientation, an active role for the patient/client in the treatment, and the application of self-directed skill-based approaches to change specific target behaviors. In fact, in a recent book on the psychology of sport injury, Heil (1993)

proposed an injury rehabilitation program which was goal-oriented, time-limited, and which placed the patient in an active skill-based role. The suggestion is clear, techniques applied to enhancing performance in a sport environment have the potential for success within a medical context.

Summary

The emergence of the field of behavioral medicine over the past 30 years has greatly influenced current approaches to the treatment of illness and injury. Whereas, earlier interventions have focused on the mind and the body as separate entities, a more holistic approach to recovery has been adopted to complement the interactive nature of the mind-body relationship and acknowledge the influence of the social environment. This shift in thinking has opened the doors to alternate treatment methods and in the case of sport injury, there has been an interest in developing psychological intervention strategies aimed at improving the rehabilitation process. Reaction from the sport medicine community has been favorable. However, there exists a need to educate this group on sport psychology skills which can be applied to the rehabilitation setting. Athletes can also benefit from such training particularly since there is reason to believe that performance enhancement strategies employed in sport can be successfully transferred to the treatment setting.

The Psychological Impact of Sport Injury

The recognition that sport injury involves both a physical and mental component has sparked an interest among several sport psychology researchers and, until recently, much of the focus has been on the psychosocial antecedents of athletic injury (Andersen & Williams, 1988). However, as Brewer (1994) noted in a recent review article, a trend is emerging in

which theoretical and empirical efforts have turned to the consideration of psychological responses to athletic injury and their impact on rehabilitation. Stimulated by reports indicating that injured athletes experienced varying degrees of emotional disturbance which could be manifested through decreased motivation and treatment non-compliance (Duda, Smart, & Tappe, 1989; Fisher & Hoisington, 1993), several researchers have set out to explain the phenomenon (Grove & Gordon, 1992; Rose & Jevne, 1993; Wiese-Bjornstal, Smith & Lamott, 1995) and to suggest intervention strategies aimed at improving rehabilitation behaviors (Gordon, 1986; Gordon, Milios, & Grove, 1991; Wiese & Weiss, 1987).

Athlete behaviors such as motivation and treatment adherence are of concern since it is believed that they have a direct influence on the recovery process both on a physical and a psychological level (Wiese-Bjornstal, Smith, & Lamott, 1995). For example, as is suggested by cognitive-behavioral theory and represented in Figure 1, athlete behaviors influence cognitive and emotional responses which, in turn, influence subsequent behaviors. The continuous, recursive feedback loop established by this interaction clearly demonstrates that any attempt at successfully modifying behavior in rehabilitation must begin with an understanding of the psychological correlates of sport injury.

Although the utility of this basic cognitive-behavioral model has been strongly demonstrated in other areas of psychology, research addressing its usefulness with respect to athletic injury is in its infancy (Brewer, 1994). For instance, the proposed causal path between emotional responses and behavior has only recently been tested within the context of athletic injury. Daly, Brewer, Van Raalte, Petitpas, and Sklar (1995) tested 31 recreational

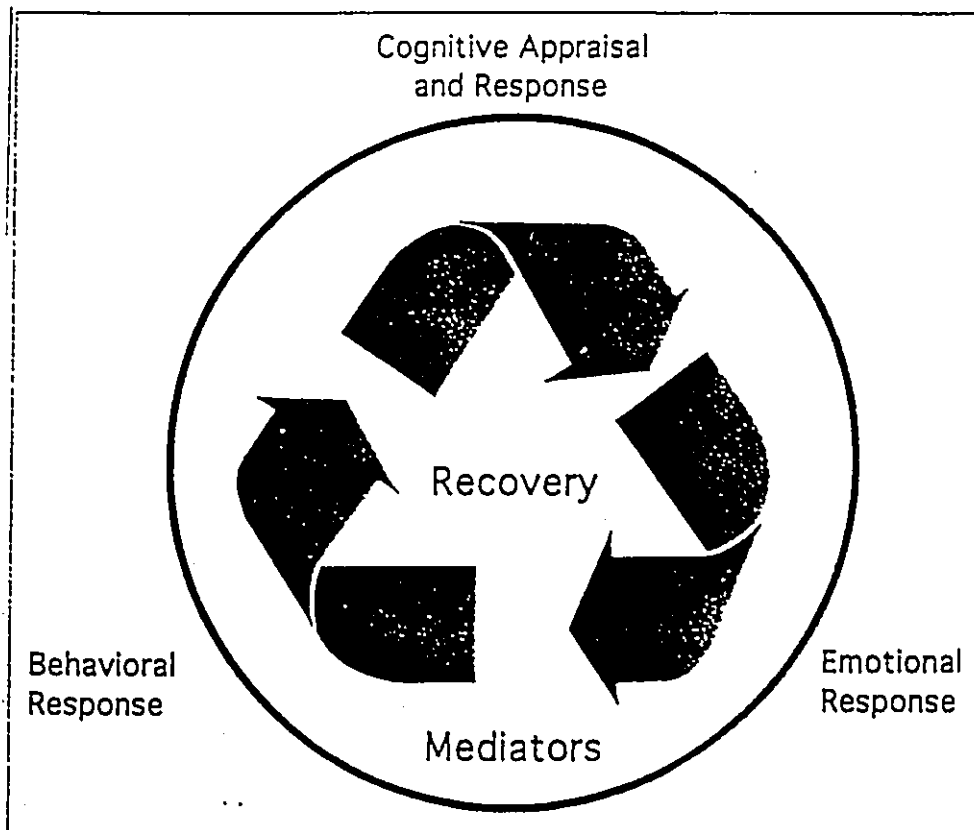


Figure 1. A conceptual model of the coping responses in injury and rehabilitation from Wiese-Bjornstal et al. (1995).

and competitive athletes undergoing rehabilitation following knee surgery. The athletes were asked to complete a measure of mood disturbance and to appraise their ability to cope with injury. Adherence to rehabilitation, measured in terms of attendance at scheduled rehabilitation appointments, and physiotherapists' ratings of athlete behavior during rehabilitation sessions were also recorded. Results indicated that cognitive appraisals were associated with emotional disturbance and that total mood disturbance was inversely related to attendance at rehabilitation sessions following knee surgery. These findings provide support for the cognitive model and suggest that emotional disturbance could be a marker for poor treatment adherence in rehabilitation.

Emotional Responses to Sport Injury

Despite the acknowledgment of emotional responses as an integral aspect of the psychological response to sport injury, research efforts aimed at identifying and documenting the affective responses of injured athletes have been sparse. Brewer (1994) suggested that this disparity may have reflected a tendency to extend theories derived outside of sport to sport populations without subjecting them to empirical scrutiny. In other words, an association between adjustment difficulties observed among injured non-athletic populations and those believed to exist among athletic populations was often formulated on the basis of intuition and/or speculation. Nonetheless, there have been some noteworthy attempts to document the affective responses of injured athletes.

Since the investigation of emotional responses to injury has relied extensively on the Profile of Mood States (POMS) test as a research tool, it is worth taking a moment to briefly describe this instrument before presenting the relevant studies. The POMS is a standardized

questionnaire developed by McNair, Lorr, and Droppleman (1981) to identify and assess transient, fluctuating affective states. It consists of 65 five-point adjective rating scales designed for individuals with at least a seventh grade education and it can be completed in about 3 to 5 mins. The POMS yields a score on each of the following sub-scales which are compared to established college norms: tension/anxiety, depression/dejection, anger/hostility, vigor/activity, fatigue/inertia, and confusion/bewilderment. A seventh score, total mood disturbance can be calculated by subtracting the positive affect score for vigour/activity from the sum of the remaining negative affect scores. The sound psychometric properties of the POMS coupled with its ease of administration have contributed to its extensive use in medicine, clinical research, and more recently, exercise and sport science research (McDonald & Hardy, 1990).

One of the earlier studies addressing the emotional impact of sport injury was conducted by Weiss and Troxel (1986) who interviewed 10 injured collegiate and elite athletes involved in sports ranging from basketball to wrestling. Common responses described by the athletes were disbelief, fear, rage, depression, tension, fatigue and somatic complaints such as insomnia and loss of appetite. In addition, many expressed an inability to cope with injury in terms of activity restriction, the long rehabilitation and feelings of being externally controlled by the injury. While these findings suggested the existence of adjustment difficulties, it was not clear at what stage of the injury process they were present nor how long they persisted.

To determine whether emotional distress accompanied injury among runners, Chan and Grossman (1988) compared the responses on POMS and the Rosenberg Self-Esteem

Inventory of a group of 15 injured runners to a group of 15 healthy runners. Results indicated that in comparison to the healthy runners, injured runners scored higher on depression, anxiety and confusion on the POMS and showed lower self-esteem. The obvious shortcoming of this study was the absence of a control group. Thus, it was impossible to determine whether the observed differences were the effects of injury or whether they could be attributed to purported elevated mood states associated with running.

Recognizing that emotional responses to injury may change throughout the recovery process, several researchers have adopted a longitudinal strategy in the study of the psychological impact of sport injury. For instance, McDonald and Hardy (1990) followed five intercollegiate athletes who had sustained injuries resulting in at least three weeks of interrupted sport activity. Within 24 hrs. of the injury, athletes were asked to complete a POMS test and the Marlowe-Crowne Social Desirability Scale to control for response style. The POMS was subsequently administered twice per week on non-consecutive days over a four-week period, for a total of eight POMS tests. In addition to completing the POMS during this period, athletes were asked to rate their level of perceived rehabilitation. The testing period ended with a follow-up questionnaire in which athletes were asked to describe their general feelings about injury and rehabilitation. Results of the POMS tests indicated that scores for depression, anger and confusion were highest at the first testing period and decreased over the four-week period. Additionally, the correlation between total mood disturbance and perceptions of rehabilitation ($r = -.69$) suggested that as perceived rehabilitation increased, negative affect diminished and positive affect increased.

In a larger scale study extended over a longer period of time, Smith, Scott, O'Fallon and Young (1990) followed 72 injured athletes from the time of injury until resumption of sports activities or four months, whichever came first. Participants completed a POMS test and the Emotional Responses of Athletic Injury Questionnaire (ERAIQ) following their first and subsequent follow-up visits (2-week intervals) with their physicians. The authors reported that the most seriously injured athletes experienced significantly more tension, depression, anger and decreased vigour compared to college norms. Results of the ERAIQ indicated that the emotions rated most strongly by all 72 athletes at the time of initial assessment were frustration, depression and anger. The duration of these emotional states was influenced by injury severity, with the most seriously injured athletes showing more persistent mood disturbances.

Although these longitudinal studies provided insights into emotional variations present throughout the course of recovery and possible variables mediating these effects, the lack of data on the athletes' preinjury emotional states posed a dilemma in that postinjury mood disturbances could not be attributed directly to the effect of injury. In other words, the possibility that the emotional responses observed were the result of something other than injury had to be considered. Smith, Stuart and colleagues (1993) recognized this shortcoming and addressed it in a prospective study they conducted to determine whether preinjury and postinjury differences existed in the mood state and self-esteem of competitive athletes.

For the purposes of their study, Smith, Stuart et al. (1993) used three instruments: the ERAIQ, the POMS test and the Rosenberg Self-Esteem Inventory. Preinjury data on each

of these scales were collected from 276 competitive athletes representing the sports of hockey, baseball, volleyball, and basketball. Postinjury data on the three scales were collected from 36 athletes at the time of injury and every week thereafter until the resumption of sport activities. Comparisons of preinjury and postinjury POMS scores indicated significant increases in postinjury depression and anger. In addition, postinjury depression scores were highest for the athletes with more serious injuries as determined on the basis of duration of non-participation in sport. Differences in preinjury and postinjury self-esteem scores, however, were not significant.

The Smith, Stuart and colleagues (1993) study described above was particularly noteworthy because it was the first to investigate emotional responses to sport injury using preinjury and postinjury emotional profiles of athletes using the same psychometric instrument, the POMS. As a result of this sound methodology, the authors were able to assert that the observed mood disturbances were, indeed, related to injury and not merely a reflection of a disturbed preinjury mood state. The authors went on to intimate that their findings supported previous studies which, on the basis of postinjury data only, reported mood disturbances associated with the occurrence of injury.

It is interesting to note that, despite variations in research design and flaws in associated methodologies, the results yielded from investigations of emotional responses to sport injury were unanimous in their support of the existence of postinjury mood disturbances. However, while it may be apparent that there are, indeed, emotional responses associated with sport injury, the appropriateness of using the POMS to assess or measure these responses must be questioned.

The primary issue is one which sport psychologists are grappling with on a daily basis, i.e., should psychometric tests developed for non-sport populations be used in a sport setting? For example, the POMS sub-scale which is intended to measure anger/hostility contains the item “ready to fight” which can be considered maladaptive in a non-sport environment yet adaptive and even desirable in some sports (Smith et al., 1993). Thus, while in one instance the item in question referred to a hostile tendency, it may have, on another occasion, indicated readiness to perform or compete. In the case of the injured athlete, for instance, “ready to fight” may have implied that the athlete was ready to confront the challenges of rehabilitation. Admittedly, “ready to fight” is but one of 65 items. However, the above criticism clearly points to the importance of considering the impact of contextual factors which may influence response patterns.

In a recent effort to use a less ambiguous measure of emotional responses to sport injury, Quackenbush and Crossman (1994) developed a questionnaire made up of 48 adjectives, 36 describing positive emotions and 12 describing negative emotions. The questionnaire also had blank spaces where respondents could list emotions not included among the choices provided. Twenty-five competitive and recreational athletes who had experienced and subsequently recovered from an athletic injury in the last year were asked to complete the questionnaire which covered four stages of athletic injury: initially, the following day, during rehabilitation and when returning to practice. In line with previous studies, results indicated that negative emotions such as anger, frustration and discouragement were prevalent at the early stages of injury and dissipated with time, while positive emotions such as optimism and hopefulness increased throughout the stages. The

authors also reported that recreational athletes tended to be more positive than those competing at higher levels.

Interestingly, Quackenbush and Crossman (1994) did not provide any comparison data regarding injury severity despite the acknowledged significance of this variable with respect to emotional adjustment to sport injury. Furthermore, given that the length of the rehabilitation stage varied according to injury severity, of which there were three groups ranging from less than seven days of sport activity lost to more than three weeks of non-participation, it was not clear what stage of the rehabilitation process was reflected in the athletes' responses. As shall be discussed elsewhere, this is an important consideration since emotional responses vary within the rehabilitation stage.

In addition to empirical contributions regarding the emotional response to sport injury, there have been a number clinical observations indicating that the occurrence of a sport injury had a significant impact on athletes' psychological functioning. For example, based on experience with treating injured athletes, Heil (1993) suggested that, typically, when injury was severe, required surgery or a long period of rehabilitation, or was perceived as a threat to the athlete's career, the injured athlete presented with a subclinical psychological adjustment syndrome. The syndrome was characterized by small deviations from normal functioning which were not likely to be immediately disruptive to the person and, therefore, received little attention. However, these relatively small deviations, which either resolved naturally or persisted for long periods without notice, could contribute to diminished performance and health.

The subclinical syndrome represented a slowed process of emotional reorganization following injury and, according to Heil (1993), could be manifested through the following behaviors: unusual pain complaints, sleep disturbance, fatigue, moodiness, situational anxiety, compliance problems, rehabilitation setbacks, excessive or awkward optimism, and poor understanding of rehabilitation. Although the syndrome has not been tested directly, it nonetheless provides valuable insights with respect to the complexities of emotional responses to injury and highlights the importance of considering the athletes' ability to accurately report on their psychological states at given stages of recovery.

Finally, a point echoed throughout the sport injury literature was that although there is support for the existence of mood disturbances among injured athletes, the duration and intensity of these affective responses along with the frequency with which they occur varied significantly both within and across individuals (Brewer, 1994; Grove & Gordon, 1992; McDonald & Hardy, 1990; Pargman, 1993; Wiese-Bjornstal et al., 1995). Furthermore, a number of authors maintained that these fluctuations could be predicted by accounting for the interaction of personal and situational factors.

Among the personal factors which have been found to be associated with emotional responses to athletic injury are: explanatory style, hardiness (Grove, Stewart & Gordon, 1990), self-esteem (Chan & Grossman, 1988), psychological investment in sport (Brewer, 1993), injury history (Shaffer, 1992) and coping skills (Grove & Gordon, 1992; Rotella & Heyman, 1993; Weiss & Troxel, 1986). Situational variables which have been shown to affect postinjury emotional adjustment include: injury severity (Smith, Scott, O'Fallon & Young, 1990), duration of injury, progress in recovery (McDonald & Hardy, 1990), and life

stress (Brewer, 1993). Oddly, sport-specific situational variables which have been posited to influence postinjury emotional distress such as time of athletic season, point in athletic career, and role on the team remain without empirical support.

Summary

Although much of the current sport injury research is based on the notion that thoughts influence emotions which, in turn, affect behavior, investigations of the emotional response to injury have been sparse. However, a number of noteworthy studies have emerged and despite certain methodological shortcomings such as the lack of non-injured controls and the failure to obtain preinjury data to supplement longitudinal and cross-sectional research strategies, the results support the existence of mood disturbances associated with sport injury. Typically, negative emotions such as anger and frustration were present at the onset of injury and dissipated over time. Additionally, injury severity was determined to be a significant factor influencing mood disturbance, with the more severely injured athletes showing the most adjustment difficulties. Clinical observations complemented empirical findings and highlighted the complexity of emotional responses to injury, while pointing to some methodological considerations for future studies. Finally, the influence of personal and situational factors in emotional responses to athletic injury was noted.

Cognitive Approaches to Sport Injury

Whereas emotional responses may be thought of as reflecting the “what” aspect of sport injury, cognitive processes can be conceptualized as representing the “why” component of sport injury. In other words, having established the existence of varying degrees of

emotional disturbance associated with sport injury, the question which inevitably presents itself is: "Why do athletes react to sport injury as they do?". The answers to this question offered in the literature represent two distinct approaches: one conceives of sport injury as a loss while the alternative perspective proposes that sport injury be viewed as a stressor. As a result of their divergent views regarding the basis of observed emotional disturbances among injured athletes, the "loss" and "stress" approaches have advanced different models of adjustment to sport injury. These models were intended as a means of providing a theoretical framework through which psychological responses could be explained and predicted. Each of these positions is discussed separately.

Injury Viewed as a Loss

One hypothesis which has been set forth is that sport injury may pose some sort of existential dilemma for competitive athletes in that it represents a form of loss. In other words, in being deprived of physical activity, injured athletes are also being thwarted in their attempts to achieve a sense of purpose or meaningfulness (Thomas & Rintala, 1989). What is implied by this position is that an appreciation of the psychological impact of sport injury must begin with an exploration of the meaning that sport occupies in the life of a competitive athlete.

From a philosophical standpoint, sport "...provides a world in which the freedom to act is guaranteed because the rules eliminate the demands and utilities of the external world by defining an unnecessary and futile task that produces nothing of material value" (Metheny, 1968, p. 63). While the latter part of this statement may strike some as harsh, it serves to highlight the non-utilitarian function of sport and implicitly suggests that sport

participants must be intrinsically motivated, to some degree.

More importantly, however, the conceptualization of the world of sport as separate and apart from the everyday world, both in conduct and intent, allows one to appreciate the uniqueness of the athletic experience. It is a world into which the athlete enters voluntarily but that requires dedication and commitment and a willingness to prepare optimally through training and conditioning, the development of required skills, and the sacrifice of time and other activities (Thomas & Rintala, 1989). In fact, it has been postulated that a necessary condition to achieving expertise in sport, as well as in some other domains, is the equivalent of an estimated 10,000 hours of practice aimed at skill development and improvement (Ericsson, Krampe, & Tesch-Romer, 1993).

Although the hours of training, pain, fatigue and trial and error can often be discouraging, physically stressful, and psychologically dissonant, Thomas and Rintala (1989) claimed that they were necessary for a performance to achieve full possibility and meaning. Furthermore, this commitment to the pursuit of individual excellence allowed the athlete to "...transcend the external world to enter a separate world fashioned by skill, desire and intensity in which the fusion of human and motion, self and body is created" (Thomas & Rintala, 1989, p. 46). This state of unity or the intimate bond between the body and self was further strengthened by the occurrence of peak or "flow" experiences.

In their work on optimal experiences, Csikszentmihalyi and Csikszentmihalyi (1988) explained that flow occurred when a delicate balance was struck between a difficult or complex challenge and one's skill level. The quest to meet the challenge represented a struggle to achieve complexity. Action and awareness merged as the performer transcended

ego boundaries and rose to a higher level of consciousness. Flow experiences have been described as immensely rewarding by runners, rock-climbers, musicians, and surgeons, for example, and have been claimed to foster a sense of growth and self-actualization (Csikszentmihalyi, 1993). All things considered, it is not difficult to appreciate the disappointment or sense of loss experienced by those deprived of the opportunity for peak experiences.

Furthermore, as Thomas and Rintala (1989) have hypothesized, the physical nature of sport and the complexity of challenges presented was such that athletes became heavily reliant on their bodies to experience flow states and, consequently, came to define themselves through their physical abilities. This reliance on physical prowess as the path to excellence had the potential to create an alienation from the meaningfulness of the sport experience when an athlete became injured. Pellegrino (1979) maintained that moving from a state of health to a state of illness or injury imparted an estrangement between self and body since it engendered a change in existential state in which patients were forced to confront the fragility of their existence.

The person who becomes a patient suffers what is nothing less than an ontological assault. In our usual state we see ourselves identified with our bodies, facing the world and acting on it in essential unity. In illness the body is interposed between us and reality - it impedes our choices and actions and is no longer fully responsive. It intrudes on our existence rather than enhancing or enriching it. (Pellegrino, 1979, p. 44).

For the athlete whose physical well-being is central to achieving a sense of purpose reached through sport, the assault of injury may take on even more significance (Thomas & Rintala, 1989). In essence, the more the body is a necessary vehicle to goal achievement, the

greater the feeling of alienation or separateness when it cannot serve.

According to Thomas and Rintala (1989), alienation referred to the loss or absence of a previous and desirable relationship and was usually accompanied by feelings of anguish or tension. Furthermore, there were several kinds of alienation and the extent to which each of these was experienced was believed to vary on an individual basis. An example of one of the more profound feelings of alienation was the sense of powerlessness experienced as the injured athlete was forced to enter into a power-dependency relationship where knowledge, skill, and competence were beyond his/her realm of expertise and were in the hands of the treatment team. Another form of alienation were feelings of isolation which could result when the central social relationship in the athlete's life was temporarily severed. Indeed, the adverse effect of isolation on the injured athlete's emotional state has been recognized by a number of researchers who have suggested that maintaining social links with coaches and teammates was critical to rehabilitation (Rotella & Heyman, 1993; Wiese et al., 1991).

It was also postulated that injury entailed the denial of intrapsychic needs such as the need for meaning in one's life (Thomas & Rintala, 1989). The contention that athletes achieve a sense of meaning through sport was based on the assumption that, as rational beings, we do not voluntarily choose to engage in activities that are meaningless. Rather, the voluntary pursuit of and commitment to sport in some ways provides a forum to search for self or some form of personal meaning. As has been suggested, "to comprehend the inner world of the performer and to understand why each man, as an individual, chooses to partake in sport activity, is to pursue inquiry into personal forms of meaningful and significant existence." (Seeman, 1959, p.220).

Finally, it was suggested that illness and injury engendered a sense self-estrangement as personal definitions and self-images established during periods of health were threatened. As Thomas and Rintala (1989) explained, the perception of superior health or form and invincibility were challenged such that a state of cognitive dissonance could have resulted.

Moving from philosophical musings to an empirical forum, McGowan, Pierce, Williams and Eastman (1994) set out to determine whether changes in physical abilities arising from sport injury would be accompanied by changes in self worth. Twenty-nine members of a varsity football squad completed the Coopersmith Inventory, a self-report questionnaire with established validity and reliability designed to measure global self-worth. Pre-test and post-test measures were obtained for all athletes. In addition, 16 injured athletes completed the questionnaire once per week until resumption of activity. Results indicated that when pre-season scores were balanced, injured athletes scored significantly lower than non-injured athletes in post-season self concept. Additionally, the authors noted fluctuations from week to week during rehabilitation which, although statistically not significant, were deemed clinically significant. Follow-up interviews confirmed that feelings of alienation and lowered self-worth were exacerbated by significant events such as when the team won a game or when the athlete could not play in important games. Thus, the influence of environmental factors may be an important consideration in the examination of emotional responses to sport injury.

Summary

In addressing sport injury from an existential perspective and suggesting that the meaning that sport occupies in the life of the participant will greatly influence that athlete's

response to illness or injury, Thomas and Rintala (1989) articulated a position which had intuitive merit and was compatible with empirical findings. The authors contended that the commitment and dedication necessary to achieve excellence in sport was intrinsically motivating and afforded athletes the opportunity to experience a sense of meaningfulness and harmony between the body and the self. When this sense of unity was threatened, as in the case of injury, various forms of alienation or estrangement were experienced such as powerlessness, isolation, meaninglessness and self-estrangement. In essence, the authors posited that having developed perceptions of self based on physicality, athletes were especially susceptible to feelings of self diminution when injured. A recent study (McGowan, Pierce, Williams, & Eastman, 1994) confirmed that injured athletes experienced a precipitous drop in self worth following a disabling injury.

Grief Models of Adjustment

The conceptualization of sport injury as a form of loss prompted a number of authors to draw on grieving models as a means of explaining the psychological adjustment to sport injury. Simply put, grief is an emotional response to a perceived loss and the grieving process is characterized by psychological and behavioral manifestations (Evans & Hardy, 1995). Considering that injury represents both an existential and a social loss, the aptness of applying grief models to the sport injury context seemed particularly compelling for a number of authors (Gordon, 1986; Grove & Gordon, 1992; McDonald & Hardy, 1990; Rotella & Heyman, 1993). Interestingly, the model which has received the most attention in the sport psychology literature is the Kubler-Ross (1969) grief response model which was based on the experiences of the terminally ill. Kubler-Ross conducted over 200 interviews

with dying patients and noted that in response to their predicament, they usually proceeded through five distinct stages of grief in a successive and non-recursive manner. The stages described by the author included denial, anger, bargaining, depression, and acceptance.

Although based on a very distinct population, Grove and Gordon (1992) proposed that the grief model was appropriate to the study of sport injury since the responses of the terminally ill and injured athletes shared many similarities. They offered the following example as an adaptation of the Kubler-Ross model to a sport setting. When an injury occurred, there could be a period of shock and denial in which the athlete believed that the injury was less severe than it appeared. This could be followed by a period of heightened emotionality characterized by feelings of loneliness, anger and depression which could entail treatment compliance difficulties. As the athlete then began to accept the injury, bargaining behavior could occur as an attempt to exercise control over the situation. Finally, general acceptance occurred when the athlete became resigned to the limitations imposed by the injury and took an active role in the rehabilitation process.

Despite the enthusiasm with which stage theories of grief have been embraced in the sport injury literature, the notion of a stereotypic pattern of distinct emotional responses to loss has not stood up to empirical scrutiny. For example, Wortman and Silver (1989) conducted an exhaustive review of the literature on coping with undesirable events, including physical injury, and concluded that substantial evidence to support the assumption that there existed a consensual, stage-like pattern of responses to negative life events was lacking. Rather, the extent of emotional responses varied greatly with personal attributes and the context within which the event occurred.

With respect to studies addressing sport injury specifically, the evidence supporting stage models of grief has been equivocal. Although the grieving model has not been tested directly, results of studies as those cited previously which indicated that injured athletes experienced emotional disturbances such as anger and depression are often cited as support for the stage models of grief (Grove and Gordon, 1992; McDonald & Hardy, 1990). Such findings, however, do not provide sufficient basis to assert that athletes respond to injury according to a predictable sequence of stages. In fact, as Wiese and Weiss (1987) pointed out, the evidence suggested that affective response patterns could be far more complex than predicted by stage models, with athletes vacillating between emotional highs and lows throughout the recovery process.

Despite the criticisms levied against stage models of grieving, particularly with respect to the failure of the model to account for oscillation between stages and the need for these stages to be experienced sequentially by individuals experiencing grief (Brewer, 1994), the Kubler-Ross model continues to be offered as a way of conceptualizing the athletic response to injury. For example, Gordon, Milios and Grove (1991) reported that in response to a questionnaire examining the psychological aspects of sport injury from the perspective of sport medicine professionals, 66 physiotherapists mentioned having observed reactions in injured athletes that resembled the five stages of the Kubler-Ross model. Bargaining and denial were observed more frequently than anger and depression. However, all the stages were rated as greater than “moderately indicative” of a poor response to injury.

Although grief responses were present in the Gordon et al. (1991) study, the contention that their results supported the Kubler-Ross stage model must be approached with

caution since the respondents were not asked to describe the sequence of responses exhibited by injured athletes. In fact, as Brewer (1994) has pointed out, a common sequence of discrete emotional reactions to athletic injury has yet to be documented.

In an effort to resolve the difficulties associated with stage models of the grief response, several authors have attempted to redefine the model with some proposing a two-stage (McDonald & Hardy, 1990), a four-stage (Gordon & Lindgren, 1990) or a five-stage approach (Rotella, 1985). Karl (1987) suggested that phase models which allowed for regression between stages could be more appropriate. As a means of accounting for the dynamic nature of affective responses to injury and the existence of contradictory emotions during this period, Heil (1993) offered a simplified model consisting of three components: distress, denial and determined coping (see Figure 2). Heil maintained that the proposed alternative model retained the basic ideas set forth in the grieving model but allowed for the movement through stages to follow a repetitive cyclical path as opposed to a linear one. In essence, it seems that every attempt at adapting the Kubler-Ross model represents a departure from the basic premise of stage models which assert that stages are distinct and are negotiated in a successive and non-recursive manner.

Summary

The perception of sport injury as a form of loss prompted a number of researchers to turn to grief response models as a means of explaining and predicting the emotional and behavioral responses observed in injured athletes. The grief response model which appeared most frequently in the sport injury literature was that proposed by Kubler-Ross which suggested that individuals experiencing grief passed through a succession of five discrete

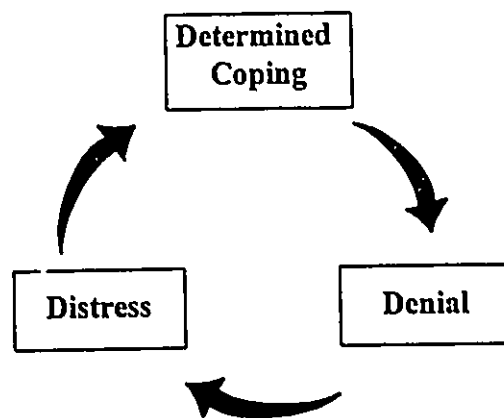


Figure 2. The affective cycle of injury from Heil (1993).

stages on the way to positive adjustment: namely, denial, anger, bargaining, depression and acceptance. Despite its popularity, the Kubler-Ross model has not received empirical support and has been criticized mainly for its inability to account for individual differences in response to athletic injury, i.e., oscillation between stages. As an effort to overcome these difficulties, several versions of the basic grief model have been proposed to the point where they are no longer stage models but phase models which allow for movement between stages.

Injury Viewed as a Stressor

An alternate view of sport injury which has dominated enquiry in the field is based on a reconceptualization of sport injury as a stressful event rather than a loss *per se*. This line of thinking draws heavily on stress and coping theories which ascribe a central role to cognitive processes and posit that the way in which an event is perceived is more critical to understanding emotional reactions than the fact that it has occurred. It is further postulated that individual interpretations of events are influenced by an interaction of personal and situational factors. Thus, where loss theories have fallen short in accounting for individual differences in response to major life events, stress and coping theories have flourished.

One of the driving forces underlying contemporary stress and coping research was the work of Selye (1950) who introduced the concept of the “fight or flight response” concerning physiological changes and the mobilization of bodily defenses in response to noxious stimuli. This series of responses was called the “General Adaptation Syndrome” and represented a process of evaluating the environment and developing a strategy to overcome the life challenges encountered. Work addressing the psychology of human adaptation emerged in the 1960's and saw an increase in fervor in the 1980's (Eckenrode, 1991). Indeed, the amount

of literature on the subject is both impressive and overwhelming. However, as Hobfoll (1988) pointed out, despite the proliferation of research, or perhaps as a result of it, a unified construct of stress was lacking. It was suggested that this could be due to the fact that stress is one of the most complicated phenomena in the area of psychological inquiry.

Lazarus and Folkman's Theory of Stress

One of the more readily agreed-upon definitions of stress is that advanced by Lazarus and Folkman (1984) who drew heavily on Selye's principles of environmental stimuli and individual assessment (see Figure 3). The authors proposed a cognitive-relational definition of stress in which stress was viewed as a relationship between the individual and the environment that was cognitively appraised by the individual as personally significant and which taxed or exceeded resources. They went on to explain that this relationship was influenced by two processes: (a) cognitive appraisal, which determined the meaning of the person-environment relationship and the person's emotional response, and (b) coping, through which the person altered or managed this relationship.

Cognitive appraisals occurred on two levels. First there was an effort to determine whether the event or situation represented a challenge, a threat, actual loss or harm. This was followed by an assessment of the potential consequences of the event on various areas concerned, i.e., assets, relationships, and self-esteem. The estimated demands of the situation were then measured against personal and social resources, with stress resulting when the former exceeded the latter. When a situation was deemed stressful, cognitive and behavioral efforts were invoked to master, reduce or tolerate the internal and external demands created by the stressful situation. This coping behavior served two major functions: to regulate emotions and manage the problem causing the stressor.

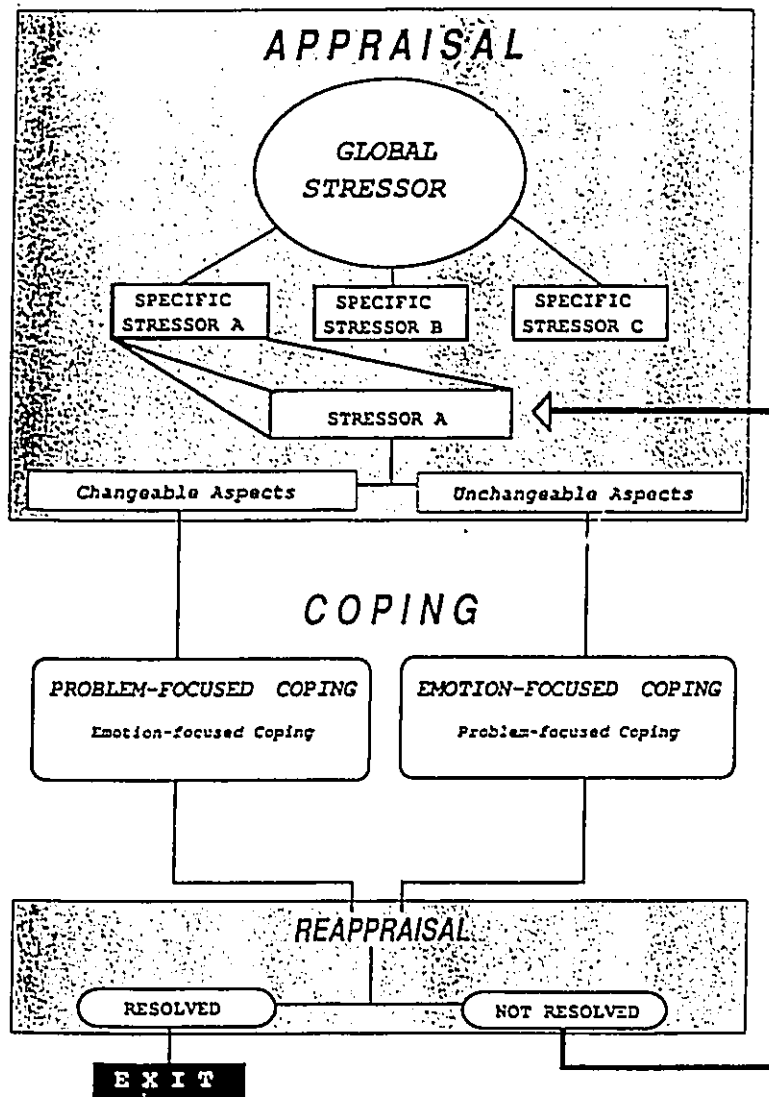


Figure 3. Appraisal and coping model from Lazarus and Folkman (1984).

Generally, problem-focused forms of coping were most often relied upon when situations were appraised as amenable to change and could include cognitive problem-solving and decision-making, information-gathering, goal-setting, advice-seeking, and time management. Emotion-focused forms of coping such as cognitive reframing and positive self-talk represented cognitive efforts that changed the meaning of a situation without changing the environment; they were invoked when situations were appraised as not amenable to change. Behavioral efforts to make oneself feel better, as through exercise, relaxation and support-seeking were also considered emotion-focused forms of coping. Despite the distinctions, it is important to note that both problem- and emotion-focused forms of coping were believed to be present in virtually every stressful encounter.

Folkman et al. (1991) further explained that coping was a dynamic process in which the person-environment relationship was always in flux and constantly being reappraised. These reappraisals generated new emotions and coping behaviors which, in turn, changed the relationship. It was further postulated that coping processes were influenced by coping resources, characteristics of the individual or the environment which facilitated coping, and situational factors which could serve to amplify the relative importance of the stressor. Examples of coping resources included: stable trait characteristics such as hardiness and optimism, psychological characteristics such as self-esteem and social competence, social network characteristics and levels of available support, and achieved statuses such as education, financial resources, or occupational prestige (Antonovsky, 1979). Simply put, coping ability was determined by the net effects of demands associated with the stressor and available resources.

In terms of stress resistance or coping effectiveness, Lazarus and Folkman (1984) hypothesized that it was based on two types of fit: the fit between reality and appraisal and that between appraisal and coping. The former referred to the match between what was actually going on in the person-environment transaction and the person's appraisal of that transaction, with both overestimation or underestimation of the situation leading to maladaptive coping. The fit between appraisal and coping rested on accurately assessing the degree of changeability or controllability of the situation and using problem- or emotion-focused forms of coping in consequence.

Hobfoll and Parris Stephens (1990) criticized the Lazarus and Folkman (1984) model claiming that it was tautological and therefore lacked predictability. For instance, under the Lazarus and Folkman model, demands were defined as internal or external events that challenged resources and resources were those internal or external mechanisms that counteracted the effects of the demands. Thus, if demands were defined by virtue of resources and resources were defined by virtue of demands, it could not be known *a priori* what would constitute a demand or a resource. Furthermore, if demands were purely perceptions thereof, they could only be determined on the basis of individual experience. However, as Hobfoll and Parris Stephens noted, there was ample research suggesting that undesirable events were those perceived as stressful (Thoits, 1983) and that people generally agreed on which events were undesirable (Dohrenwend, Krasnoff, Askenasy, & Dohrenwend, 1978).

Conservation of Resources Stress Theory

In an effort to provide a more accurate and more efficient conceptualization of stress, Hobfoll (1988) proposed the Conservation of Resources (COR) model which is based on the premise that "... people have an innate as well as a learned desire to conserve the quality and quantity of their resources and to limit any state that may jeopardize the security of these resources" (p.25). Hobfoll defined stress as a reaction to the environment in which there was (a) a perceived threat of a net loss of resources, (b) a perceived net loss of resources, or (c) a perception that an investment of resources was not producing a gain. Resources, under the COR model, consisted of either (a) objects, personal characteristics, conditions, or energies that were valued by the individual or (b) the means for attainment of those objects, personal characteristics, conditions or energies.

With resources serving as its basic unit, the COR model asserted that stress was simply a matter of gain and loss of resources and that people were centrally concerned with the conservation of their resources (Hobfoll, 1988). Thus, it was hypothesized that when faced with a situation in which there was the threat of an actual or potential loss, the stress process was initiated and individuals responded by attempting to limit the loss and maximize gain of resources. These "conservation" strategies, or coping behaviors, however, required the investment of other resources to counteract the loss created by the stressor. Thus, the process of coping could lead to a depletion of resources and if the loss sequence was not turned around, further stress could ensue (Hobfoll & Parris Stephens, 1990).

An interesting aspect of the COR model centers on the assertion that, over time, individuals expected that the investment or risk of resources would lead to a net gain and

when this expectation was not met, stress would result (Hobfoll, 1988). What this suggested was that individuals did not merely react to situations perceived as stressful but, through the investment of resources, participated in creating these situations or mental states. Such a perspective has important practical implications with respect to stress management strategies in that individuals can be taught resource investment skills which would enable them to minimize their losses and maximize their gains. Furthermore, conservation of resources can be enhanced by maintaining a flexible appraisal style so that threats may be reinterpreted as challenges, and the value of resources may be reassessed, i.e., less significance could be attributed to a resource loss (Hobfoll, 1988).

Hobfoll (1988) argued that, although they were individual, perceptions of stress had a broad social consensus, i.e. based on shared social values. Thus, the impact of a given situation or event could be determined within a social or cultural context independent of individual assessments. Indeed, research endeavors would be greatly hindered if perceptions of stress were believed to be completely subjective since attempts to develop taxonomies of stress or stress rating scales would be futile. By the same token, the inability to speculate on which events may be perceived as stressful would also negate the possibility of developing stress management interventions with global application.

With respect to stress resistance or effective coping, Hobfoll (1988) offered what was termed a model within a model: the model of ecological congruence (see Figure 4). Through this model, Hobfoll attempted to outline the major parameters involved in stress resistance and to outline the relationships between them. The model was factor-oriented because it emphasized personal and social characteristics of the individual, and process-oriented in its

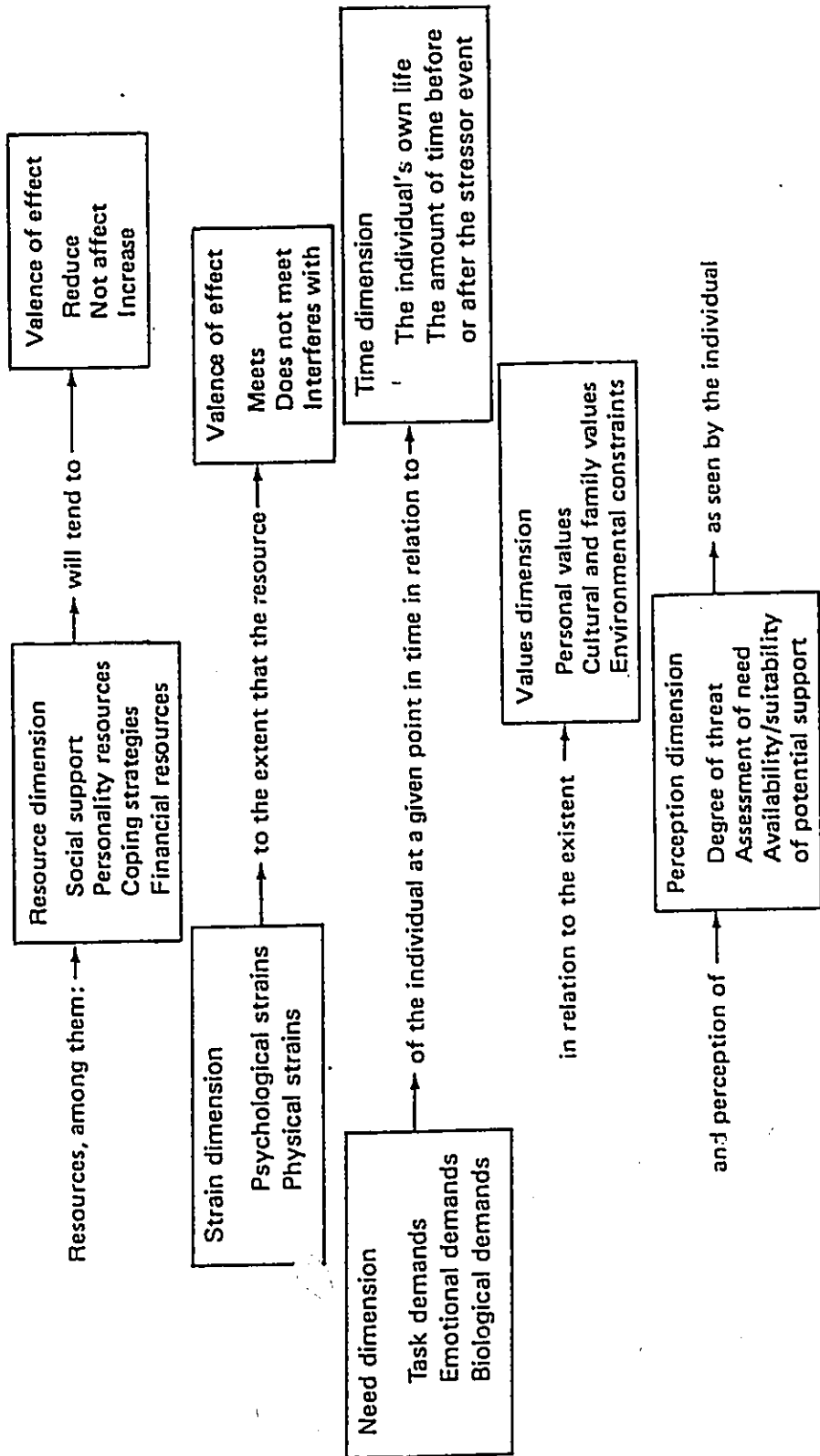


FIGURE 4: Revised model of ecological congruence. From Hobfoll, 1986.

proposition that cognitions, behaviors, biological links, and subconscious processes affected the interpretation, magnitude, and consequences of threatening events.

The model of ecological congruence also highlighted the person-environment fit but went on to suggest that in addition to having a subjective basis, perceptions of stress were influenced by objective properties of resources and environmental demands. These properties were determined, for the most part, on the basis of common societal values. That is why, explained Hobfoll (1988), there is general agreement that events such as death, divorce and loss of employment are viewed as major life stressors. Based on empirical findings cited in the stress literature, Hobfoll concluded that the influence of the environment on outcome was greater when faced with major stressors and that individual perceptions were more influential in determining the impact of minor hassles.

Summary

Two theories of stress and coping were presented, the Lazarus and Folkman (1984) model which emphasized cognitive processes in the assessment of stressful events and Hobfoll's (1988) COR model which asserted that both subjective and environmental factors contributed to perceptions of stress. While one model appeared to favor idiosyncratic perceptions and the other shared perceptions of stress, both agreed that stress was the result of person-environment interactions in which there was a perceived threat to personal and social resources. Furthermore, despite their divergent accounts of the appraisal/assessment process, both models agreed that stress resistance and coping resources consisted of personal attributes, characteristics of the individual's social network and environmental factors.

In essence, both theories have made significant contributions to stress and coping research in terms of elucidating the mechanisms underlying the phenomenon and highlighting the importance of distinguishing between major and minor life hassles. Finally, as is suggested by Hobfoll's (1988) ecological perspective, the two theories need not be considered mutually exclusive but as rather complimentary. Despite its parsimony and predictive value, however, the model of ecological congruence has yet to be acknowledged in the sport psychology literature. As will be demonstrated in the next section, contemporary models of the psychological response to sport injury and rehabilitation rely exclusively on the Lazarus and Folkman (1984) model of stress and coping.

Cognitive Appraisal Models

The reconceptualization of sport injury as a stressor has contributed to redefining research directions in the study of athletic injury. The emphasis on cognitive processes suggested by stress and coping theories is particularly well suited to the field since it can offer a means of accounting for observed differences in emotional responses (Heil, 1993; Smith, Scott, & Wiese, 1990) and recovery rates (Ievleva & Orlick, 1991) among injured athletes. On the basis of findings emerging from stress and coping research, there has been an increased effort to describe the cognitive processes of injured athletes and to assess how personal and environmental factors influence these processes. Some authors have offered clinical explanations (Heil, 1993) while others have developed comprehensive models based on empirical studies addressing the psychological correlates of athletic injury (Wiese-Bjornstal, Smith, & Lamott, 1995).

Clinical Model

In line with stress and coping theories which indicated that the impact of a stressor could be experienced on a number of levels (Folkman et al., 1991), Heil (1993) described how the stress of being injured could affect athletes in terms of physical, emotional and social well-being, as well as self-concept (see Figure 5). Heil went on to describe how the emotional distress accompanying the physical event of injury could give rise to distortions in thinking which reflected inaccurate interpretations of the situation at hand. Findings in cognitive-behavioral research (Beck, Rush, Shaw, & Emery, 1979) indicated that during times of stress there were five major categories of cognitive distortions which could prevail: catastrophizing, overgeneralization, personalization, selective abstraction, and absolutistic or dichotomous thinking. An interpretation of these categories of distortions within an athletic injury setting is offered in Figure 6.

Essentially, Beck and associates (1979) claimed that catastrophizing referred to instances where exaggerations of a situation abounded. Overgeneralization occurred when the expected impact of a situation was incorrectly extended to areas that were not likely to be affected. An individual who "personalized" took undue personal responsibility for the situation and gave it some exaggerated special meaning in relation to oneself. Selective abstraction occurred when individuals attended to specific aspects of a situation which had little meaning in the overall context. And, finally, absolutistic/dichotomous thinking referred to a tendency to simplistically reduce complex experiences to all-or-none categories.

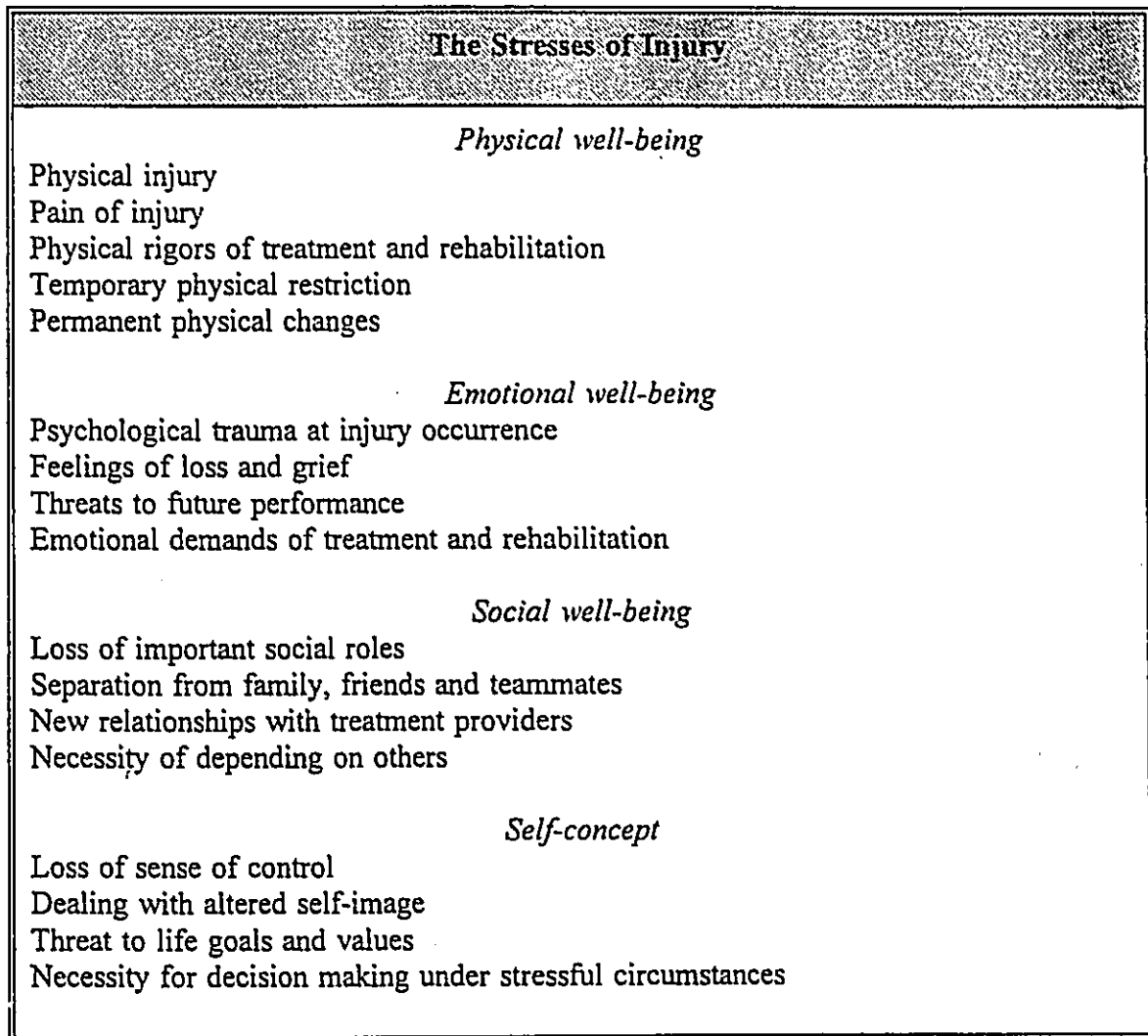


Figure 5. The stresses of sport injury from Heil (1993).

Cognitive Distortions
<p><i>Catastrophizing</i></p> <p>At the time of injury: "I'll never be able to play again." Following a pain flare-up: "I'll never get over this pain."</p>
<p><i>Overgeneralization</i></p> <p>Following a shoulder injury: "I'll probably lose my running speed, too." "At the rate I'm going with my rehabilitation I'll probably screw up my grades, too."</p>
<p><i>Personalization</i></p> <p>"Why am I the one who always gets injured?" Upon observing the athletic trainer to be in an unpleasant mood: "My trainer must think I'm not trying hard enough."</p>
<p><i>Selective abstraction</i></p> <p>"The last player with a knee injury didn't recover and neither will I." "If the coach had let me train in my own way this would have never happened."</p>
<p><i>Absolutistic/dichotomous thinking</i></p> <p>"My pain is either physical or it's in my head." "Because I'm injured I'm worthless to the team."</p>

Figure 6. Examples of cognitive distortions in sport injury from Heil (1993)

Psychosocial Models

While clinical approaches to sport injury have tried to provide an understanding and explanation of cognitive processes occurring in response to athletic injury, psychosocial models represented an attempt to account for the numerous variables believed to be influencing these processes. The underlying assumption of these models was that the same psychosocial factors which contributed to injury occurrence also influenced the response to injury (Grove et al., 1990). The Andersen and Williams (1988) model of stress and athletic injury which has served as the basis for studies investigating risk factors associated with sport injury (see Figure 7), has been adapted by Grove and Gordon (1992) to describe post-injury psychological processes (see Figure 8).

The Grove and Gordon (1992) adaptation was particularly useful to the study of the psychological response to athletic injury because it represented a synthesis of cognitive-behavioral principles, theories of stress and coping and empirical findings supporting the influence of the personal and situational factors on cognitive and emotional processes. For example, a number of authors have proposed that cognitive appraisals of the stresses of injury are influenced by an interaction of personal factors such as dispositional and historical attributes of the individual, and situational factors such as severity and timing of the injury (Andersen & Williams, 1993; Brewer, 1994; Pargman, 1993).

Another variation on the Andersen and Williams (1988) model which was proposed by Wiese-Bjornstal and Smith (1993) and later modified by Wiese-Bjornstal, Smith and Lamott (1995) represents the most comprehensive model of the psychological response to injury and rehabilitation offered thus far (see Figure 9). In addition to its thoroughness,

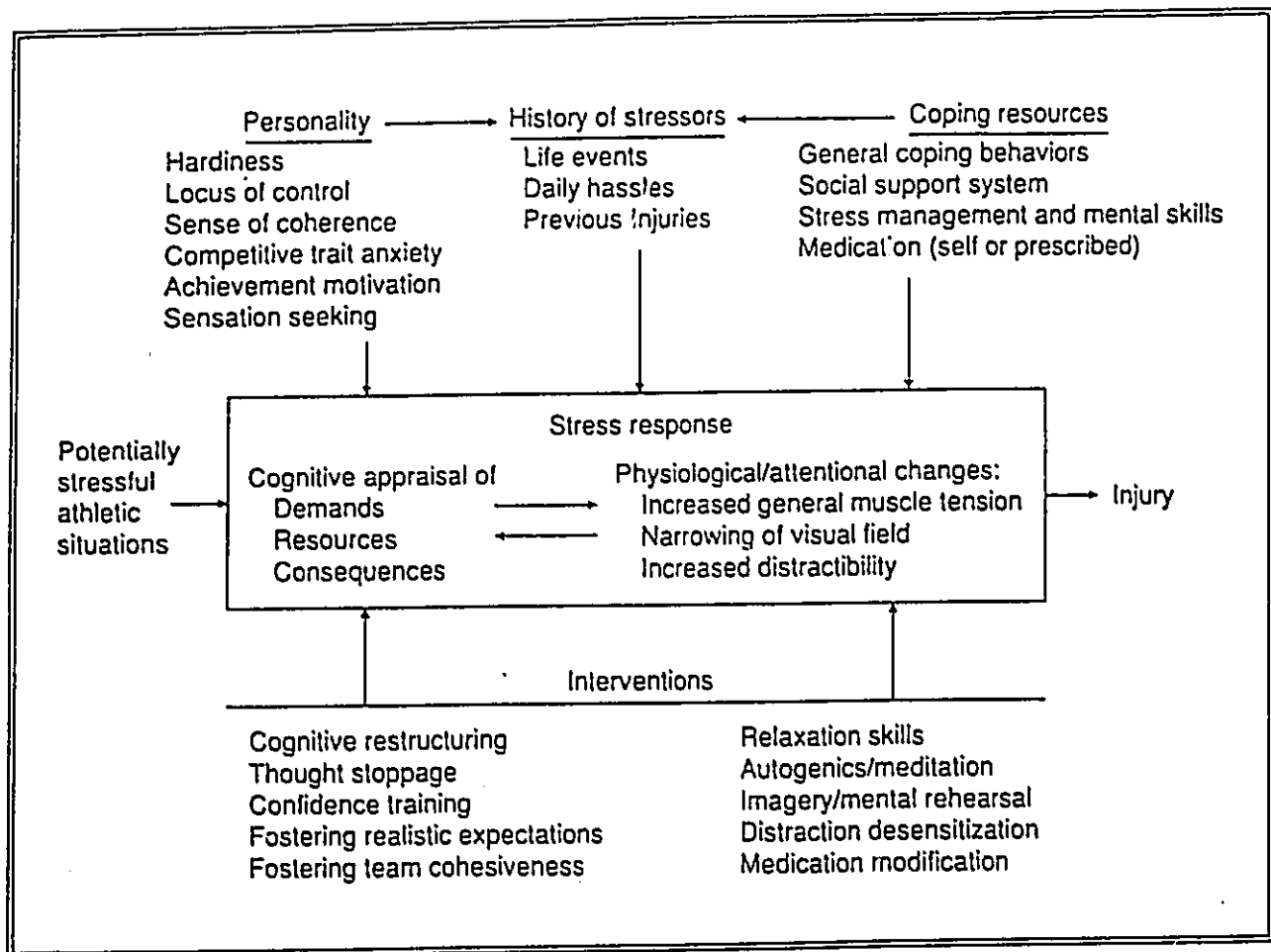


Figure 7. Andersen and Williams' (1988) Model of Stress and Athletic Injury

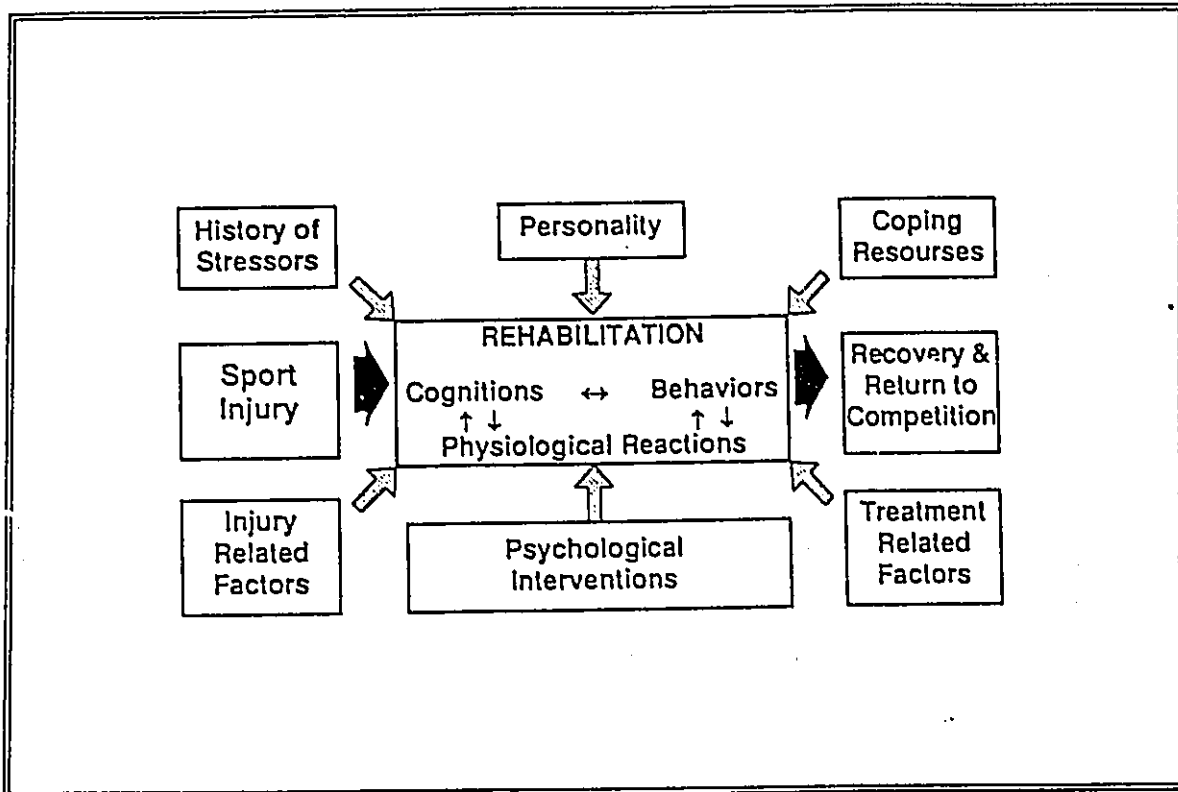


Figure 8. Grove and Gordon's (1992) adaptation of the Andersen and Williams (1988) model of stress and athletic injury.

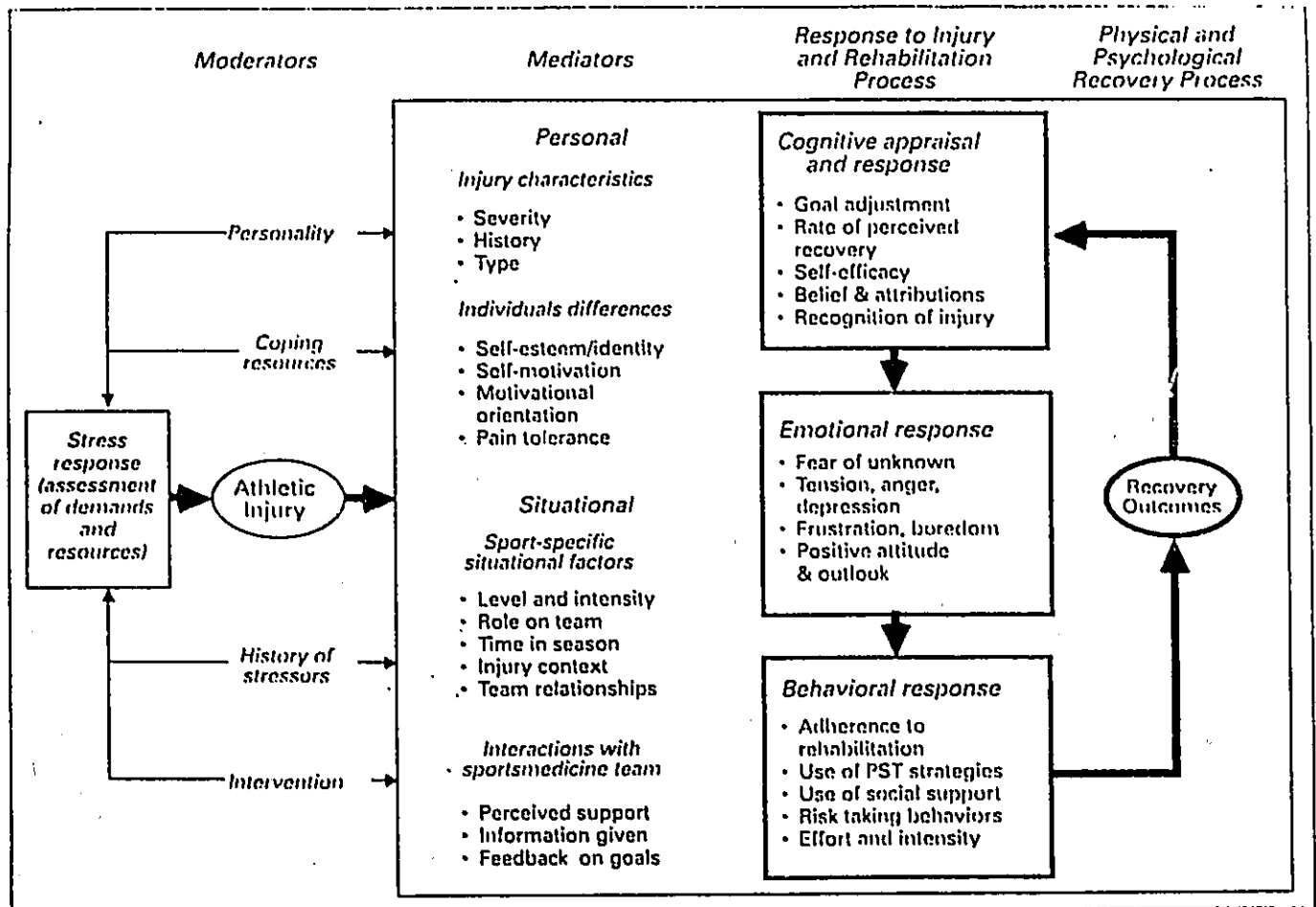


Figure 9. An operational model of the psychological response to athletic injury and rehabilitation from Wiese-Bjornstal et al. (1995).

the clarity with which hypothesized relationships were displayed contributed to the efficiency of the model and thus made it a valuable tool in terms of guiding future research endeavors. Like the Grove and Gordon (1992) rendition, Wiese-Bjornstal and colleagues maintained the theme of the stress response as a central mechanism in determining the postinjury response. However, they distinguished between mediator and moderator variables thought to influence the process.

Moderator variables referred to antecedent conditions, such as personality or gender, which interacted with the event of injury to produce an outcome, i.e. emotional response (Wiese-Bjornstal et al., 1995). Mediator variables were generated in the encounter, i.e. interactions with the sports medicine team, and changed the relation between the antecedent and outcome variables. For example, words of encouragement from the treating physician could assuage the injured athlete's anxiety (antecedent variable) such that the athlete adopted a positive outlook and attitude toward the injury (outcome variable). This distinction between variable types was useful because in addition to describing the variables it simultaneously accounted for their interaction.

The Wiese-Bjornstal et al. (1995) model was also more explicit in demonstrating the direction of effect among cognitive, emotional and behavioral components of the response to athletic injury. Furthermore, in line with stress and coping theories, Wiese-Bjornstal and colleagues highlighted the cyclical nature of cognitive appraisal in the development of their model by showing that it was an ongoing process continuously influenced by mediating and moderating factors. For all of these reasons, model developed

by Wiese-Bjornstal and colleagues was the best suited to the current study and, therefore, served as a basis for discussion of the study results.

Summary

The emphasis on cognitive processes underlying theories of stress and coping has contributed to the development of a number of cognitive appraisal models in the field of sport psychology. Introduced were a clinical model which focused specifically on cognitive processes, and two psychosocial models which were, in fact, adaptations of the Andersen and Williams (1988) model of stress and athletic injury. The adapted models were developed as a means of integrating cognitive-behavioral principles, theories of stress and coping and empirical findings which indicated that the psychological response to athletic injury was influenced by the interaction of personal and situational factors. The most comprehensive model found in the literature was proposed by Wiese-Bjornstal et al. (1995) and will serve as a basis for discussing the results of the current study.

Behavioral Outcomes

The growing interest in the psychological impact of sport injury has been fueled by a concern for the athlete's mental health and physical well-being. It has been recognized that in addition to medical factors, the success of recovery from athletic injury depends a great deal on psychological factors influencing behavioral outcomes. Indeed, as is suggested by the biopsychosocial approach to healing, the two are inextricably interrelated and heavily influenced by social factors. Furthermore, healing is viewed as a dynamic process in which biological, psychological and social factors are constantly in flux and continually being readjusted in view of each other.

Apart from physiological considerations, successful recovery from athletic injury hinges on treatment adherence. Athletes must be committed to attending their rehabilitation appointments, completing all required exercises and doing so with a high level of intensity if they are to benefit maximally from their treatment program. Rehabilitation, therefore, poses a number of physical and motivational challenges which can lead to compliance difficulties. Indeed, non-adherence to treatment regimens is a recognized problem among injured athletes (Fisher, Domm & Wuest, 1988).

Treatment adherence has recently become a focal point among sport injury researchers and has given rise to two interrelated research interests: identifying predictors of adherence to rehabilitation and developing coping strategies aimed at improving psychological adjustment to injury and behavior in rehabilitation. Both are based on cognitive-behavioral principles and have as an underlying assumption that behavioral outcomes in rehabilitation are indicators of psychological adjustment to the stresses of injury. For example, behavioral problems such as non-compliance, poor attitude, and lack of motivation have been perceived as manifestations of cognitive and emotional distress (Gordon, Milios, & Grove, 1991). Conversely, behaviors such as treatment adherence and assuming personal responsibility for rehabilitation have been taken to reflect positive psychological adjustment. Therefore, behavior modification in rehabilitation must begin with an examination of psychological factors impacting on that behavior.

In line with the biopsychosocial model, researchers attempting to identify predictors of treatment adherence have incorporated factors suggested by the model in their investigations. For example, Fisher, Domm and Wuest (1988) developed a 40-item

questionnaire to examine personal and situational factors related to rehabilitation adherence among athletes. The questionnaire was administered to 41 intercollegiate athletes and results indicated that, compared to non-adherers, adherers tended to, in order of importance, perceive greater social support from significant others, believe they worked harder during rehabilitation, be higher in self-motivation and pain tolerance, and be less bothered by the scheduling of sessions and the environmental conditions of athletic training.

In a separate study, Duda, Smart and Tappe (1989) examined the relationship between psychosocial factors and adherence behaviors in the athletic injury rehabilitation setting. They argued that personal incentives, sense of self and perceived options determined motivation in specific situations. Forty intercollegiate athletes completed questionnaires designed to tap into these components of motivation. Results indicated that athletes who demonstrated the best adherence were self-motivated and task involved in sport, perceived greater social support for their rehabilitation, and believed in the efficacy of the treatment.

It is important to note that in both of the abovementioned studies, treatment adherence was operationalized differently. In the Fisher et al. (1988) study, for instance, categorization of adherents and nonadherents was determined in consultation with the athletes' physical trainers and was based on attendance at rehabilitation sessions and a comparison between expected versus actual progress. Duda et al. (1989) had physical trainers rate adherence on the basis of attendance, completion of the exercise protocol and degree of effort. This points to an important methodological consideration with respect to future studies in that the establishment of a common operational term would allow for cross-comparisons and, ultimately, enhance understanding of the phenomena under investigation.

Research on coping strategies and their effects on rehabilitation have also been sparse with most investigators drawing on behavior modification techniques derived outside of sport. For example, Gordon (1986) offered an adaptation of techniques developed by Meichenbaum (1977) to deal with stress and pain management and suggested that interventions such as cognitive restructuring, relaxation and visualization could improve an injured athlete's coping skills. Cognitive restructuring is relevant to the clinical model of cognitive appraisal discussed earlier and is a technique which teaches athletes how to recognize irrational thoughts and beliefs and reframe them within a more rational and productive framework. In their description of the rehabilitation programme used at the Mayo Clinic Sports Medicine Centre, Smith, Scott and Wiese (1990) indicated that in addition to relaxation, visualization and cognitive restructuring techniques, athletes also received instruction on effective goal-setting strategies.

Fisher (1990) argued that behavioral outcomes in rehabilitation were not the responsibility of the athlete alone. In acknowledging the influence of environmental factors, Fisher claimed that the behavior of athletic trainers could have an impact on the injured athlete's motivational level throughout rehabilitation. For instance, in response to behavioral difficulties exhibited by injured athletes, athletic trainers could become less interested in adequately explaining the treatment protocol, soliciting the athlete's active participation or monitoring progress. The therapist's attitude could contribute to further adherence difficulties and a vicious circle is thus formed. Indeed, the contention that adherence can be facilitated or inhibited by the actions and attitudes of the therapist has been supported by other sport injury researchers (Fisher et al., 1988; Weiss & Troxel, 1986).

Fisher's (1990) position was that treatment adherence could best be understood as a function of athlete characteristics and the conditions surrounding the rehabilitation. Fisher also made the broad assertion that self-confidence was the key to rehabilitation adherence and suggested three categories of strategies which could complement self-confidence: competence strategies, control strategies and commitment strategies. It was asserted that feelings of competence were enhanced through education about the injury and a strong belief in treatment efficacy. Additionally, it was believed that learning pain control techniques and engaging in self-monitoring activities could contribute to feelings of control. Finally, commitment could be enhanced through proper goal-setting techniques and the presence of social support.

Unfortunately, the effectiveness of such interventions has not been subjected to empirical scrutiny and, therefore, remains speculative. To date, there has been only one study which has attempted to identify coping strategies contributing to enhanced recovery. Ievleva and Orlick (1991) administered a questionnaire to 32 athletes who had recovered from a knee or ankle injury. Participants were asked to rate items representing the following factors in terms of their contribution to recovery: attitude and outlook, stress and stress control, social support, goal-setting, positive self-talk, and mental imagery. In addition, athletes were ranked as fast, slow or average healers based on their own perceptions and the assessments of physical therapists. Results indicated that the top three variables associated with fast recovery were goal-setting, positive self-talk and healing imagery.

Although encouraging, these results cannot be construed as evidence for the effectiveness of coping strategies since these variables were not directly manipulated but

implied. Furthermore, the psychometric properties of the questionnaire used are unknown since no validity nor reliability data were reported. Also, the study did not control for satisfaction with recovery. For instance, it is possible that the fast healers viewed their recovery more favorably because they presumably did not run into complications with their rehabilitation regimen. Finally, as the authors pointed out, the varying interpretation of social support offered by the participants indicated much confusion regarding this variable.

Despite the lack of empirical support for the effectiveness of the rehabilitation interventions mentioned, they have, without exception, been recommended by a number of sport injury researchers offering advice to injured athletes (Gordon et al., 1991), sport medicine professionals (Fisher, 1990; Gordon et al., 1991; Ievleva & Orlick, 1991; Wiese & Weiss, 1987; Wiese-Bjornstal & Smith, 1993), sport psychologists (Brewer, Van Raalte, & Linder, 1991) and coaches (Gordon et al., 1991). In fact, in a recent book on the psychology of sport injury, Heil (1993) proposed that a comprehensive treatment approach based on the following elements be adopted in the treatment of sport injury: education, social support, goal-setting, and mental training, i.e. positive self-talk and visualization. Indeed, these strategies bear a strong resemblance to performance enhancement techniques used in sport. Thus, it would seem that the recommendations suggested by the sport injury researchers are based on a parallel drawn between the stresses of sport and the stresses of injury.

Summary

It has been acknowledged that successful recovery from sport injury hinges on adhering to recommended treatment plans. This coupled with the recognition that behavioral outcomes in rehabilitation were influenced by psychological factors has resulted in two major

concerns in the area of sport injury: identifying psychosocial predictors of treatment adherence in rehabilitation and developing intervention strategies aimed at enhancing coping effectiveness, and treatment compliance. It was asserted that treatment adherence could best be understood as a function of athlete characteristics and the conditions surrounding the rehabilitation. In terms of athlete characteristics, self-motivation, perceptions of social support, task involvement, pain tolerance, and belief in treatment efficacy were identified as predictors of better treatment adherence. With respect to intervention and coping strategies, recommendations centered on cognitive restructuring techniques, effective goal-setting, healing imagery and social support. Although, the effectiveness of these interventions remains to be empirically assessed, they continue to be recommended as useful strategies in the management of sport injuries. This is perhaps motivated by the feeling that the presumed effectiveness of these techniques in sport can reasonably be extended to the rehabilitation setting.

Consolidating the Research Findings

As with other forms of illness and injury, it is believed that sport injury is both a physical and psychological phenomenon influenced by a number of personal and situational variables. Research addressing the psychological impact of athletic injury has relied heavily on principles of behavioral medicine and is based on the premise that emotional and behavioral responses to injury are based on cognitive appraisals. Empirical work has revealed that athletes ranged in their responses to injury and that these responses fluctuated throughout the recovery period. Nonetheless, there was general agreement that negative

emotions such as anger and frustration were present at the onset of injury and dissipated over time.

Cognitive approaches to sport injury served as a basis for explaining the affective responses of injured athletes. Two conceptualizations of athletic injury were found in the literature. One view which held that sport injury was an existential loss, i.e., a loss of meaning in the athlete's life, proposed that the emotional responses of injured athletes was akin to grieving responses observed among the terminally ill. The alternative view drew on theories of stress and coping and proposed that sport injury was a major life stressor. In accordance with this line of thinking, cognitive appraisal models were offered as an operational framework to explain and predict the impact of sport injury.

The most comprehensive model of the psychological response to injury and rehabilitation offered thus far was based on the Andersen and Williams (1988) model of stress and athletic injury. Wiese-Bjornstal et al. (1993;1995) retained many aspects of the original model and extended it to account for postinjury processes. This model can be especially useful in guiding research endeavors since it represents a synthesis of the knowledge base by accounting for the interactive nature of mediator and moderator variables and by demonstrating the presumed direction of effect among cognitive, emotional and behavioral components of the response to athletic injury. Also highlighted in the model was the dynamic interaction among all factors involved in the recovery process. Thus, the model can readily account for observed differences both within and among athletes in response to athletic injury.

The Wiese-Bjornstal et al. (1995) model can also serve as a basis for predicting and explaining the effectiveness of intervention strategies designed to facilitate the psychological adjustment to sport injury, thereby improving behavioral outcomes in rehabilitation. The behavior which determines the effectiveness of a rehabilitation program is treatment adherence which is usually described in terms of attendance at rehabilitation, completing all required exercises and doing so with a high level of intensity. Treatment adherence is thought to be influenced by a combination of athlete characteristics and conditions of the rehabilitation environment, i.e. rapport with rehabilitation staff.

A number of coping strategies aimed at improving psychological adjustment and treatment adherence have been advanced in the literature. The suggested techniques represent a blending of cognitive-behavioral modification methods and strategies employed in performance enhancement intervention in sport. The most commonly recommended rehabilitation interventions include: education about the injury, social support, goal-setting, and mental training, i.e. positive self-talk and visualization. Although they have not been tested directly, research addressing the predictors of treatment adherence have shown that some of these techniques have been associated with better treatment adherence and/or faster recovery.

Since the major aim of the present study was to investigate the influences of social support in recovery from athletic injury, the following section will focus specifically on social support as an intervention strategy and attempt to provide a theoretical basis for its presumed effectiveness in the context of rehabilitation from sport injury. In terms of the

Wiese-Bjornstal et al. (1995) model, it will serve as a basis for comparing and discussing findings yielded from the present study.

Social Support

The interest in social support has its roots in stress and coping research which, over the past 20 years, has been preoccupied with uncovering the mechanisms underlying the association between stress and mental health. Research investigating the role of social support in the stress process has yielded promising results indicating that social support may have preventive and curative effects with respect to health and well-being (Sarason, Sarason, & Pierce, 1990a; Thoits, 1986). For example, Cobb (1976) explored the role of social support as a moderator of life stress and concluded that social support provided protection from pathological states, accelerated recovery from illness and enhanced compliance with medically recommended regimens. Others have claimed that social support contributed to improved adaptation to potentially stressful events (Dunkel-Schetter & Bennett, 1990; Gottlieb, 1988).

Defining Social Support

The literature on social support is replete with definitions of the concept of social support with some researchers emphasizing specific actions and others calling attention to perceptions of being supported. In an effort to account for the multifaceted nature of the construct, the following definition was offered by Shumaker and Brownell (1984) who claimed that social support referred to "... an exchange of resources between at least two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient." (p. 13).

Social support was believed to be an interactive process comprised of four basic elements: (a) a support provider, (b) a support recipient, (c) the transaction between the provider and the recipient, and (d) the outcomes of the transaction (Albrecht & Adelman, 1984). Recipients were perceived to be proactive elements of the support process in that they had personal characteristics that affected how they interacted with others and how they accessed the needed support. Additionally, the recipient had to transmit the need for a specific type of support to potential providers. Albrecht and Adelman further added that providers had to recognize the request for help and then be willing and capable of offering the type of support requested. Finally, the recipient had to perceive the behaviors of providers to be helpful in meeting expressed needs in order for social support to contribute to enhanced physical and psychological well-being. Social support, thus viewed, consisted of both a behavioral component, i.e. exchange of resources, and a cognitive component, i.e. perception of the exchange.

Behaviors believed to fulfill support functions included expressing emotional support (e.g. affection) or appraisal support (e.g. performance feedback), giving information (e.g. advice and role clarification), or offering emotionally sustaining behaviors (e.g. empathy) and listening to the concerns and feelings of others. Building on previous work by Pines, Aronson and Kafry (1981), Hardy and Crace (1991) proposed a definitional framework to distinguish between the various types of support behaviors (see Figure 10). They pointed out that with the exception of informational resources which require the provider to have expertise in the technical area in question, social support could be provided by virtually

SOCIAL SUPPORT Resources		
Emotional	Informational	Tangible
Listening Support: person actively listens without giving advice or making judgements.	Shared Social Reality: person with similar priorities, values and views who can offer sound advice during times of stress or confusion.	Personal Assistance: person gives of their time skills, knowledge and expertise to help accomplish tasks not necessarily related to the specific problem
Emotional Comfort: person willing to be on the individual's side in a difficult situation even if not in total agreement with what the individual is doing.	Technical Appreciation: person able to acknowledge when a good effort or piece of work is accomplished.	Material Assistance: person provides financial assistance, products or gifts.
Emotional challenge: person helps the individual cut through their own emotionality in order to arrive at a rational solution.	Technical challenge: person continually prompts, encourages and challenges the individual to do more and achieve more.	

Figure 10. Taxonomy of social support types from Hardy and Crace (1991).

anyone and generally did not require training. Furthermore, not all types of social support were necessary to optimize recovery.

With respect to injured athletes, Hardy and Crace (1991) felt that shared social reality, technical appreciation and technical challenge could be strong motivational factors in rehabilitation and given that these types of support required a certain amount of expertise on behalf of the provider, those most suited to offering this type of social support were sports medicine personnel, coaches and teammates. Moreover, coaches could provide an important social support function by keeping injured athletes involved with the team and their sport.

Functions of Social Support

Social support has been found to influence health outcomes in two ways: through main effects and buffer effects (Cohen & Wills, 1985). Research exploring the main effects of social support on health addressed issues of social integration and their impact on overall functioning. As Thoits (1985) suggested, social relationships could provide a sense of identity, a source of positive evaluation, and/or a sense of self-efficacy. Thus, main effect theorists emphasized the important psychological benefits which stemmed from the mere existence of social connections, apart from specific interpersonal exchanges (Rook, 1990). Social interaction, they claimed, was beneficial regardless of the individual's level of life stress.

In contrast, studies investigating the buffering hypothesis focused specifically on social interactions which occurred under conditions of high stress. Buffering implied that support protected individuals from the negative effects of stress on health and well-being. The assumption was that, as opposed to individuals with weak support, those with strong

support would display lower levels of symptomatology when experiencing high stress. Social support, therefore, was perceived as a potentially valuable resource which could aid stress resistance by providing a feeling of being cared for, fostering the belief that one was valued, loved and esteemed, and by providing a sense of belonging to a reciprocal network (Cobb, 1976; Hobfoll & Parris Stephens, 1990).

Furthermore supportive interactions could serve to prevent or limit resource loss, provide for resources that were lost or help stimulate latent resources (Hardy & Crace, 1991; Hobfoll & Parris Stephens, 1990). For instance, as was discussed earlier, confronting a stressor demands the reallocation of personal resources to deal with the situation. However, sometimes the demands of the stressor exceed a person's available resources such that the individual must turn to others to supplement coping resources (Folkman & Lazarus, 1986). Thus, in the case of sport injury, social support could serve to counteract the resource loss incurred as a result of the injury itself and the concomitant stresses of rehabilitation.

Research has demonstrated that support provided by others was helpful in coping with life stress, mental and physical illness, job stress, and bereavement (Hardy & Crace, 1991). Within sport, several researchers have reported that the recovery process was often enhanced by social support (Gordon & Lindgren, 1990; Gordon et al., 1991; Hardy & Crace, 1991; Ievleva & Orlick, 1991; Wiese & Weiss, 1987). It has also been shown that social support could be an effective psychological technique in motivating injured athletes during rehabilitation (Duda et al., 1989; Fisher et al., 1988).

For example, Wiese, Weiss and Yukelson (1991) surveyed the attitudes and beliefs of 115 athletic trainers regarding the application of psychological strategies to injury

rehabilitation. The trainers were asked to rate characteristics which distinguished athletes who had coped most and least successfully with injury rehabilitation in terms of importance. Social support was rated as important and was found to be lacking for those who coped poorly. Moreover, when asked to rate the effectiveness of techniques for helping athletes cope with injury, trainers rated coach support for the athlete as very important.

With respect to research which has focused specifically on the role of social support in recovery from sport injury, there have been two exploratory studies examining ways of enhancing social support for injured athletes from the perspective of sport physiotherapists (Ford & Gordon, 1993; Ford, 1991) and coaches (Ford, 1991). Suggestions for providing social support to athletes most often recommended by coaches included spending more time with the injured athletes, ensuring that communication channels were open and helping the athletes set realistic short and long term goals. Physiotherapists rated all types of social support as being either important or very important to recovery. In terms of practicability of application, listening support, emotional support and personal assistance were deemed practicable or very practicable.

Finally, the only other study which dealt specifically with social support found in the sport psychology literature was a study conducted by Rosenfeld, Richman and Hardy (1989) which explored the social support networks of athletes in order to determine the relationship between network characteristics and stress. A questionnaire was developed and administered to 190 collegiate NCAA Division I athletes. The athletes were asked to provide data with regard to the type of social support provided, the perceived amount of support provided and who provided it. Results indicated that: (a) listening support was provided primarily by

friends, (b) technical support was provided primarily by coaches and parents, (c) technical challenge support was provided primarily by coaches and teammates, (d) emotional support was provided primarily by friends and parents, (e) emotional challenge support was provided primarily by friends, parents and coaches, and (f) shared social reality was provided primarily by friends. In terms of differences in the social support networks of athletes rated as high or low stress individuals, no significant differences were found.

Measurement Issues

Efforts to demonstrate a consistent relationship between social support and well-being have been marginally successful, with some studies indicating that the presence of social support contributed to improved functioning and others showing that it was inconsequential and sometimes detrimental (Sarason, Sarason, & Pierce, 1990b). At the source of these inconsistencies is the fact that social support is a multidimensional construct and, as a result, three groups of measurement approaches have surfaced in the literature. Network models consider the individual's integration into a group and the interconnectedness of those within that group. Received support models concern themselves with the support the person actually received or reported to have received and satisfaction with that support. Finally, perceived support models focus on the support the person believes to be available if needed.

As Sarason, Sarason and Pierce (1990b) explained, although each of these approaches was driven by different conceptions or definitions of social support, it was often assumed that they were measuring the same thing when, in fact, different aspects of social support were being assessed. Therefore, it was not surprising that a lack of agreement existed between the results yielded from these different approaches. The authors also pointed out that

contradictory findings existed within measurement groups as well. To shed light on some of the factors contributing to these inconsistencies, each approach is discussed separately.

Network Models

When discussing social networks the scope of focus is limited to "...those people with whom individuals have direct personal links or those people who through significant or important ties provide the individual with support" (Sarason, Sarason & Pierce, 1990, p.12). Some measures look at network components such as size and density while others explore the functions of network members in terms of the type of help provided.

The assumption that a larger network may engender more support is intuitively appealing. However, measures of network size have shown to be only weakly associated with availability and adequacy of support (Seeman & Berkman, 1988). Stokes and Wilson (1984) have suggested that this may be because the existence of personal social links does not guarantee that support will be forthcoming or that the support offered will meet the recipient's needs. Also to be considered was the issue of diffusion of responsibility. As Sarason, Sarason and Pierce (1990) pointed out, members of a large network could have helped less than expected because they assumed that others were already helping. In sum, the number of people to whom an individual feels close was a poor indicator of how much support would be received.

Density measures examining frequency and intensity of contact and relationship durability encountered similar shortcomings. For instance, although some relationships may have involved close and frequent contact and endured over a period of time, they could also have been marked by high levels of conflict. As Coyne and DeLongis (1986) pointed out,

help or emotional support which came from a conflictive relationship could detract from or overwhelm the positive effects of social support. In fact, it has been suggested that the degree of upset that certain relationships caused could be more important than their helpfulness (Pagel, Erdly, & Becker, 1987). In such a case, relief from the relationship was required rather than increased involvement.

Examinations of network members and the type of support provided have also proven problematic because they failed to account for the fact that relationships and needs changed over time and were affected by situational factors such as stressor type and intensity (Sarason, Sarason & Pierce, 1990). For example, a friend could be an important source of informational support during one period and an important source of emotional support at a later time. Similarly, a person facing a job-related stressor might turn to a colleague rather than to their spouse for listening support. Finally, there were individual differences between what type of support was expected from whom, with quality of the relationship being an important predictor variable (Dunkel-Schetter & Bennett, 1990).

Overall, traditional network measures have not been successful in connecting social support to health outcomes (Sarason, Sarason & Pierce, 1990). One of the major shortcomings to the network approach was that important variables such as the nature of the relationship between the support provider and recipient and the situational context in which the stressor occurred were not taken into account. This oversight made it difficult to predict whether given aspects of an individual's social network would have a positive or a negative effect as a stress buffer. Also, reliability information for network measures have been scant. Thus, it is possible that the discrepant findings yielded from network measures were related

to the psychometric properties of some instruments. Nevertheless, Sarason, Sarason and Pierce (1990a) maintained that information about network components could provide important insights when combined with other social support measures.

Received Support Models

Models which emphasize received social support are concerned with what people get from others or have received from others in the past. Received support has been discussed in terms of behavioral components, i.e., observable actions or in terms of cognitive components, i.e., the perceptions of those actions. Furthermore, a distinction has been made between the giver's account of support provided and the recipient's account of what was helpful or intended to be helpful. This is an important point to consider since each perspective may yield differing reports. For example, when Antonucci and Israel (1986) measured the veridicality of support as reported by the giver and the recipient, the level of agreement was about 50 percent. Furthermore, the source of the disagreement was traced to the giver's reports that they gave more support than the recipient reported as received. This finding was consistent regardless of whether the focus was on supportive acts or perceptions of support.

These findings pointed to an obvious discrepancy between what the giver believed was needed in terms of social support and what the recipient desired. In other words, the support offered was not matching the needs engendered by the situation. This indicated that the potential giver was either unaware of what support was needed or unable to provide the support required. Therefore, in order to bridge the gap between support desired and support given, it is important to consider the factors which may influence the support provider's

behavior. It is equally important to look at the factors influencing the recipient's perceptions of the support received.

Characteristics of the Support Provider

In their examination of support problems encountered following a life crisis, Dunkel-Schetter and Wortman (1982) pointed to the possible interaction between situational factors and personality characteristics influencing support behaviors. It was found that the more comfortable and competent a potential giver felt in providing support, the more likely that the support required would be forthcoming. However, certain types of stressors could elicit negative emotions such as discomfort, fear, guilt, frustration, and helplessness, particularly when severe. These feelings coupled with a perceived inability to meet the demands of the situation could have resulted in ineffective support-giving, withdrawal of support, and derogation or rejection of the recipient.

The impact of the stressor on potential support givers was especially salient when they shared a close relationship with the recipients since, in addition to supporting the recipients, they also had to cope with their own distress (Coyne, Ellard, & Smith, 1990). Characteristic of intimate relationships was the partners' reliance on one another to meet each other's needs and to attain personal goals. While this interdependence could have contributed to a sense of being supported under normal circumstances, it could also have proven to be an additional strain under conditions of stress. Since the coping resources of both partners could be drained by the impact of the stressor, their ability to provide each other with support could have been compromised and, in turn, contributed to further distress.

Another factor influencing support behaviors concerned misconceptions about the coping process and appropriate reactions in given situations (Dunkel-Schetter & Wortman, 1982). For example, potential support givers could have been motivated by the commonly held belief that it was better for sufferers to be optimistic and cheerful than to discuss the negative aspects of their predicament. Thus, the combination of negative emotions evoked by the stressor and misconceptions about the coping process could have made it very difficult to extend effective support (Dunkel-Schetter & Wortman, 1982).

Support Recipient's Coping Skills

It has been argued that, "the access to psychosocial and material resources depends not only on their availability in the environment but on an individual's skill in being able to draw on them" (Heller, Price, & Hogg, 1990, p.485). Thus, the social support exchange was also shaped by the behavior of the support recipient. Silver, Wortman and Crofton (1990) identified the following four types of self-presentational style to describe the support recipient's disposition or coping style: positive coping self-presentation, poor coping self-presentation, providing no information about distress, and balanced coping self-presentation. The authors claimed that how a person coped with life crisis would be an important determinant of the support offered.

According to Silver and colleagues (1990), people who appeared to be coping well with a life crisis would generate positive responses from those around them. Positive copers exhibited minimal distress, thereby reducing feelings of discomfort and helplessness in the potential support providers. However, this absence of distress could lead potential givers to believe that social support was not needed. This could be especially problematic if the

positive coping was merely a strategy meant to ease the support giver's discomfort or to earn the support giver's approval and/or admiration by appearing stoic.

Negative copers, on the other hand, communicated their need for social support by showing distress. This behavior, however, was more likely to engender negative feelings in potential providers who could have reacted by avoiding or rejecting the sufferer. For example, Coates, Wortman, and Abbey (1979) found that women who had coped poorly following a rape experienced more derogation and rejection than did those who appeared to be coping well. Thus, showing distress appears to come at a high cost.

Alternatively, a sufferer could have chosen to provide little information about distress in the hopes of obtaining some support. This approach, however, was not without its difficulties because it also created discomfort in that support givers were not sure whether or not to offer assistance. Furthermore, in the absence of information about how a sufferer was coping, potential support providers could have responded according to their stereotypes of victims or myths about coping in stressful situations (Wortman & Silver, 1989). For instance, the support giver could have assumed that although distress was not apparent, the sufferer must have been distressed because anyone else in that particular situation would have been upset. This belief could have led the support provider to force unsolicited support or inappropriate support on the individual. Thus, as Silver and colleagues (1990) concluded, unless support needs were communicated explicitly, it was likely that potential support providers misjudged the extent or types of support desired.

The authors suggested that adopting a balanced coping style could be the most effective way of overcoming the dilemma of soliciting support without exacerbating the

support provider's feelings of discomfort. Balanced copers were those who showed signs of distress accompanied by attempts to deal with the situation. It was hypothesized that this behavior was less likely to elicit feelings of discomfort and helplessness since the support provider was not responsible for providing a solution to the distress. Furthermore, by actively displaying problem-solving efforts, recipients were less likely to receive support which was sometimes unhelpful such as unsolicited advice and over involvement.

While problem-focused coping was most likely to elicit appropriate supportive behaviors, it must also be considered that the coping style displayed by the sufferer may be influenced by characteristics of the stressor. For example, Cutrona and Russell (1990) have suggested that there may be an optimal match between the needs engendered by a given situation and the supportive interactions required to meet those needs. They proposed that by categorizing life events on a number of dimensions, it may be possible to determine what type or what amount of social support would be most beneficial to protecting or enhancing well-being.

Using the four dimensions of desirability, controllability, duration of consequences and domain as a conceptual framework in categorizing stressors, the authors made a number of predictions. In terms of desirability, it was suggested that undesirable events would be more taxing and therefore require more support. It was also claimed that controllable events would be more likely to engender problem-focused coping and therefore require instrumental support while uncontrollable events would engender emotion-focused coping and be best supplemented by emotional support.

Duration of consequences was more likely to be an indication of the amount of social support needed rather than support type *per se*, with events of longer duration requiring more support. Finally, the life domain affected which would define the nature of the loss would, in turn, define the nature of the replacement required. For example, an individual experiencing a financial crisis would need a loan. Similarly, the loss of an intimate relationship would engender a need for attachment.

Through a careful review of the literature on social support addressing such issues as unemployment, illness and life transitions, Cutrona and Russell (1990) found that the findings for approximately two-thirds of the life events studied were consistent with their predictions. Controllability and domain were found to be relatively good predictors of the social support components associated with positive outcomes. With respect to the findings that did not fit the predictions based on the optimal matching model, the primary source of inconsistency had to do with under inclusiveness. In other words, Cutrona and Russell had classified events within a single life domain although some events significantly affect several domains in an individual's life. Thus, in some cases, the needs for social support identified in the literature reviewed were broader than had been predicted.

Overall, the review of literature conducted by Cutrona and Russell (1990) indicated there may indeed be an optimal support-situation match under certain circumstances. For example, specific types of social support contributed to optimal adjustment for certain events while other events required a broad range of social support components to effectively influence recovery. Cutrona and Russell (1987) also suggested that the type of support needed may be influenced by one's developmental status and life situation. This implies that

in order for social support to be effective it must have different functions at different periods in life. The optimal matching approach holds promise with respect to improving intervention strategies. However, as the authors of the theory have pointed out, there exists a need to develop empirical methods to assess the demands, challenges and needs associated with given occurrences.

Perceptions of Received Support

With respect to the recipient's perceptions about being supported or satisfaction with the support received, there are a number of factors to consider. One important aspect concerns the nature of the relationship shared between the support giver and the recipient since it is believed that this will influence expectations for support (Antonucci & Jackson, 1990; Coyne, Ellard, & Smith, 1990). It is hypothesized that the closer or more intimate the relationship, the more support is expected. For example, a sufferer will most likely expect more support from a spouse than from a casual acquaintance.

Dunkel-Schetter and Bennett (1990) claimed that expectations for and evaluation of support were also influenced by the sufferer's perception of the potential giver's ability or competence in providing support. Antonucci and Jackson (1990) have suggested that expectations of reciprocity also influenced satisfaction with support received. Their reasoning was based on the notion that people tried to maintain equity within their relationships. Therefore, if someone had provided much support to a person in the past, they would expect the same from that person. In any case, when the support received was less than what was expected, satisfaction decreased and when the support received exceeded expectations, satisfaction increased (Dunkel-Schetter & Bennett, 1990).

The discrepancy between the perception of the support giver and the recipient with respect to support provided was also attributed to factors associated with the quality of the relationship or the support exchange. As Sarason, Sarason, and Pierce (1990b) pointed out, it was not so much the support act itself which was of significance but what it conveyed about the relationship or the recipient. For example, knowing a person meant to be helpful could be beneficial even though the support behaviors were not (Dunkel-Schetter & Bennett, 1990). However, Dunkel-Schetter and Bennett were careful to point out that the detrimental effects of unsupportive behaviors could outweigh good intent. Coyne, Ellard and Smith (1990) claimed that this was particularly so when the support came from a relationship which was conflictive, demanding or problematic.

In summary, received support measures provide a confounded picture of available support, individual coping skills, and relationship quality. It is, therefore, not surprising that measures of received support have been unable to demonstrate a consistent relationship between social support and improved functioning. As in the case of network models, the work on received support is indicative of a need to clearly distinguish support measures according to which aspect of support they are measuring. This would enhance the predictive quality of the measures while allowing for sensible comparisons of results.

Perceived Support Models

Also referred to as available support models, perceived support models focused on the recipient's perception of support believed to be available if needed. It is this perception of social support which has been shown to be the most closely related to health outcomes (Antonucci & Israel, 1986; Sarason, Pierce, & Sarason, 1990a). Although, the received

support and perceived support models both emphasize perceptions of support, they have been shown to represent distinct and separate constructs (McCormick, Siegert, & Walkey, 1987). For example, received support concerns past or present real events whereas perceived support deals with future imagined events.

Furthermore, it has been suggested that received support was of concern when addressing the buffering effects of social support, while discussions of perceived support were more relevant to investigations of the main effects of social support (Dunkel-Schetter & Bennett, 1990). As mentioned earlier, the buffering hypothesis is based on specific stressful events and the main effect hypothesis is based on global adaptation or functioning. This is an important distinction which may help explain why perceived support measures have been more successful in demonstrating a relationship between social support and health outcomes. For instance, unlike received support measures, perceived support measures are unlikely to be confounded by issues of stressor specificity.

In addition, it has been suggested that perceived social support may represent a personality variable (Sarason, Pierce, & Sarason, 1990; Sarason, Sarason, & Pierce, 1990b). Lakey and Heller (1988) claimed that rather than being anchored in a particular supportive transaction, the feeling that one was cared for and valued could reflect a generalized appraisal bias that had become part of the individual's personality. Therefore, if perceived support had a strong personality component it should remain relatively stable over time.

Sarason, Pierce and Sarason (1990) also supported this view and suggested that a more appropriate term for describing perceived social support might be "sense of acceptance". This proposed change in nomenclature was based on a series of studies carried

out by Sarason and colleagues who tested support predictions based on Bowlby's (1977) attachment theory and compared social support instruments. Essentially, Bowlby described how early attachment experiences served as cognitive models regarding the self and relationship partners. A secure attachment was believed to enhance children's exploratory behavior, coping skills and, ultimately, their sense of self-efficacy. Sarason, Pierce, and Sarason (1990) hypothesized that these early experiences influenced expectations about relationships and perceptions about the availability for support. The results of their studies prompted the authors to conclude that a sense of acceptance was "... an inherent, stable, personality characteristic that contributes to the perception of social support separately from what the environment actually offers at any particular time" (Sarason, Pierce, & Sarason, 1990, p. 110).

Dunkel-Schetter and Bennett (1990) suggested that it was the perception of availability of support that was health protective and that the accuracy of the perception was not necessarily pertinent. In fact, when compared to support actually received, the perception of available support had proven to be somewhat inaccurate (Lakey & Heller, 1988). Lakey and Heller claimed that there were three basic situations in which misperceptions could occur: (a) when expectations for support were too high, (b) when initial support dissipated and (c) when expectations for support were exceeded. Inaccuracies could further be attributed to the fact that the effects of the stressor on the support provider, the support recipient and hence their relationship were difficult to estimate and, therefore, may not have been taken into consideration when predetermining available support. As mentioned in the preceding section, these are important mediator variables which may influence the support interaction.

Summary

The lack of a coherent theory of social support has led to the development of different measurement approaches, each driven by varying conceptions and definitions of social support. Some are concerned with network aspects of social support while others focus on specific support acts and satisfaction with those acts or the perception of available support. As a result, there is inconsistency among findings with some showing a positive relationship between social support and improved functioning and others showing either a negative relationship or no relationship at all. Several explanations were advanced to account for these inconsistencies ranging from methodological to theoretical considerations. The present state of social support research points to a need to develop a more comprehensive theory such that the health protective effects of social support can be better understood. Indeed, it would seem that the quest for a better understanding of social support calls for a departure from a simplistic description of resources exchanged between two or more individuals toward a more comprehensive theory which can account for the interpersonal and intra-personal processes guiding support interactions. House, Landis and Umberson (1988) have stated that a broader theory of social support must address each of the following factors: (a) the quantity of social relationships; (b) the formal structure of these relationships, i.e. density and reciprocity; and (c) the content of these relationships. Furthermore, these characteristics should be examined within the same study in order to better understand the associations among these variables.

Chapter Summary

Epidemiological studies have shown that sport injury is a problem that is broad and far-reaching representing both an economic burden and a substantial loss of playing time for competitive athletes. Current approaches to the treatment of sport injuries have been greatly influenced by the field of behavioral medicine which professes a multifaceted treatment approach based on the consideration of physical, psychological and social factors. As a result, there has been a growing interest in developing intervention strategies aimed at helping athletes cope with psychosocial aspects of recovery from athletic injury.

The underlying tenet pervasive in current approaches to sport injury is the cognitive-behavioral principle which asserts that thoughts influence emotions which, in turn, influence behavioral outcomes. Furthermore, this relationship is cyclical in nature and is affected by personal and situational variables. Research on the psychological aspects of sport injury is sparse and has been criticized for its atheoretical nature and methodological shortcomings. In addition, there has been a tendency to extend theories and related measurement instruments from outside of sport to sport settings. As a result, the findings reported must be interpreted with caution as they may or may not accurately reflect the phenomena under investigation.

Despite their imperfections, investigations in the field of sport injury have yielded findings which have enabled researchers to make general assumptions regarding the psychological response to athletic injury. For example, there is general agreement that athletes will typically respond to injury with anger and frustration but that these feelings will dissipate over time. In an effort to provide a theoretical framework to explain and predict responses to injury, several models of adjustment to injury were proposed. The models

represented two orientations: one viewed sport injury as a loss of meaning and the other conceived of sport injury as an important stressor in the athlete's life. Loss theorists proposed grief models as a means of explaining the response to sport injury while adherents of the stress approach relied on cognitive appraisal models which had their basis in theories of stress and coping.

Stress and coping theories ascribe a central role to cognitive processes in determining the stressfulness of an event. Essentially, stress was believed to be the result of person-environment interactions in which there was a perceived threat to personal and social resources. Furthermore, it was asserted that these perceptions were influenced by subjective and environmental factors. Within this context, coping ability was determined by individual coping skills and available external resources. In terms of the rehabilitation setting, poor coping could be manifested through decreased motivation and treatment non-compliance, thereby compromising progress in recovery. A comprehensive model of sport injury and rehabilitation was proposed by Wiese-Bjornstal and colleagues (1995) as a means of demonstrating these relationships. Because it so aptly summarizes what is currently known or presumed about postinjury processes, this model will serve as the basis for discussion of the present study's findings.

In terms of the rehabilitation interventions proposed as a means of enhancing coping and treatment adherence among injured athletes, it appears that they are based on techniques used in behavior modification programs and performance enhancement interventions. Although they remain without empirical support, the strategies most commonly

recommended include: education, goal-setting, mental training, i.e. positive thinking and visualization, and social support.

Social support represents a transactional process and is defined as an exchange of resources between individuals with the intention of helping the recipient. Social support can be informational, emotional or tangible and, with the exception of informational support, can be provided by any interested party. It has been hypothesized that social support can have a buffering effect with respect to the impact of stress by providing resources which may be temporarily unavailable to the sufferer. Thus, the presence of social support should lead to improved functioning during times of stress. Attempts at demonstrating this relationship, however, have been problematic. For instance, while some researchers have been successful in demonstrating a positive association between social support and well-being, others have reported no relation and, in some cases, a negative relationship.

The discrepancies in the social support literature are largely due to the fact that, although social support is a multidimensional construct, it has often been measured in terms of simple correlations. Three measurement approaches to social support were discussed and it was concluded that, although each made a significant contribution to the research, the study of social support would be better served by adopting a broader theory which accounted for the interpersonal and intra-personal processes guiding support interactions. To date, a methodology which would allow for the simultaneous testing of all of the various aspects of social support does not exist in the literature.

In conclusion, the proposed buffering effects of social support on the impact of life stressors remains largely speculative at this point. However, there exists a substantial amount

of clinical data indicating that the presence of social support can have salutary effects on health and well-being. And although the mechanisms underlying this relationship remain poorly understood, there are enough theoretical grounds to presume that social support can, indeed, act as a coping resource in times of stress.

Given that the study of social support processes is without a unified theory, a qualitative research design seemed particularly well suited to exploring propositions advanced in the literature. Therefore, for the purposes of the present study, an open-ended interview format was used in the hopes of shedding light on social support influences in the context of recovery from sport injury. The assumptions undergirding the study and a justification for the research design used are addressed in the next chapter.

METHODOLOGY

As discussed in the preceding section, there is reason to believe that sport injuries represent important stressors in the lives of athletes. It has also been put forth that social support has the potential to be an effective coping resource for injured athletes facing the challenges of recovery. However, little is known about the social support needs of injured athletes and whether social support does, in fact, contribute to improved functioning throughout rehabilitation. This coupled with the fact that the underlying processes mediating the effects of social support on coping with stress remain poorly understood, pointed to the need to conduct an exploratory study. The present study, therefore, set out to achieve the following objectives:

1. Identify the social support needs of skiers throughout the course of their recovery,
2. Determine if the athlete's perception of available or received social support affected their recovery.
3. Identify key sources of social support during the athletes' recovery.
4. Investigate the role of social support as a coping resource during recovery.
5. Make recommendations to athletes and their support providers regarding sport injury and social support.

Although any number of these objectives could have been achieved by using a variety of quantitative research techniques, such as administering questionnaires, the paucity of relevant information needed to guide the development of such instruments coupled with the methodological shortcomings of existing measurement tools indicated that the research purposes would be best served by using a qualitative research approach. Furthermore, the inherent flexibility of open-ended interviewing was particularly well-suited to phenomenological concern

of investigating the research question from the perspective of athletes who had experienced a sport injury.

Before discussing the methods used in the present study, a number of key issues regarding qualitative research are addressed to ensure that the merits of the current study are not overshadowed by the ongoing quantitative/qualitative debate regarding the purpose of research and how this purpose is best achieved.

Fundamental Considerations

Qualitative research emerged in the social sciences as an alternative means of investigating human experience and related phenomena (Tesch, 1990). Qualitative researchers criticized the causal doctrine of quantitative research for being too limited and narrow in scope, and for its inability to account for the complexities of human experience, which they argued, could not be reduced to simplistic cause and effect explanations. Using reductionist terms, it was claimed, only served to limit, not enrich our understanding of human phenomena (Tesch, 1990).

Also rejected was the notion of an objective reality and the quantitative canon that hypothesis testing was the only acceptable method of investigation. Rather, qualitative researchers viewed social reality as something which was created in the mind and truth as a matter of socially and historically conditioned agreement (Tesch, 1990). In other words, what was considered fact depended on one's view of the world or frame of reference. The purpose of research, therefore, was to elucidate and understand these individual world views and how they were developed.

Since sociological, psychological and educational research has been driven by different purposes, a number of qualitative approaches have emerged. As a result, the field of qualitative

research has been flooded with a plethora of research terminology. In fact, Tesch (1990) conducted a review of the field and identified over forty labels used to refer to qualitative research and distinguished twenty-seven different approaches according to research interest (see Figure 11).

Coupled with the emergence of this multiplicity of approaches was the development of various research strategies and methods of data collection and analysis. As this diversity can give rise to confusion and/or misinterpretation of research findings, it seems that the field of qualitative research would be better served if researchers articulated their orientations and clarified the fundamental assumptions of approaches used. In fact, Patton (1990) stated that a credible qualitative study was one which addressed three questions:

1. What assumptions undergirded the study?
2. What did the researcher bring to the study in terms of experiences and qualifications?
3. What techniques and methods were used to ensure the integrity, validity, and accuracy of the findings?

Thus, the ensuing discussion has been organized to address these three points, while making explicit the methods used for data collection¹ and analysis in the present study.

Research Orientation and Underlying Assumptions

In attempting to articulate an orientation, the researcher is faced with the challenging task of disentangling a mass of theoretical assertions, among which there is substantial overlap. Thus,

¹ Dey (1993) argued that since the researcher played a role in eliciting and shaping interview data, it was more accurate to say that data were produced rather than collected.

RESEARCH INTEREST		
Characteristics of language	Discovery of regularities	Comprehension of meaning of text/action
content analysis discourse analysis ethnography of communication ethnoscience structural ethnography symbolic interactionism ethnomethodology	transcendental realism ethnographic content analysis event structure analysis ecological psychology grounded theory phenomenography qualitative evaluation action research collaborative research critical/emancipatory research holistic ethnography educational ethnography naturalistic inquiry	phenomenology case study life history hermeneutics educational connoisseurship reflective phenomenology heuristic research

Figure 11. Qualitative research types according to research interest from Tesch (1990).

it must be stated at the onset that the choice of a particular position over another is more a case of goodness of fit than of exclusivity. The underlying assumptions identified, therefore, are not necessarily restricted to the chosen paradigm but may also be applicable to other qualitative approaches. This being said, the theoretical paradigm which guided the present research was a constructivist approach.

Constructivism falls under the general rubric of interpretive paradigms which assert that individuals are constantly interpreting their experiences and the world around them, and which "...share the goal of understanding the complex world of lived experience from the point of view of those who live it" (Schwandt, 1994, p.118). Fueled by the belief that individuals construct their world of reality by assigning meanings to lived experiences, interpretivists are concerned with understanding the process of meaning construction, i.e. how individuals make sense of their experiences (Guba & Lincoln, 1994). Furthermore, interpretivists contend that meanings represent highly abstract principles and understanding them, therefore, rests on interpretation. Thus, the researcher attempting to shed light on the process of meaning construction, is, in fact, offering an interpretation of an interpretation or, as Schwandt (1994) suggested, a reconstruction of a construction.

In their discussion of interpretivist approaches, Guba and Lincoln (1994) pointed out that although they shared common goals, the approaches varied in terms of how ontological, epistemological and methodological questions were addressed, and it was the answer to these three interrelated points which defined their fundamental assumptions. Ontological issues centre on definitions of reality. Constructivists assume a relativist ontology which holds that reality is a product of the human intellect and, as a result, there are multiple realities (Guba & Lincoln,

1994). Furthermore, it is asserted that these numerous realities are expressed through symbol systems which verbal, i.e., language, and non-verbal, i.e., art (Schwandt, 1994). In addition, these realities are constantly being informed and reshaped (Guba & Lincoln, 1994).

This relativist position has important implications with regards to the meaning of knowledge and truth. For example, constructivists reject the notion of knowledge as a form of representation, as some objective truth existing independent of the knower waiting to be discovered. Rather, it is posited that knowledge is created through the construction of meaning and that this process is influenced by sociocultural factors. As Taylor (1971) stated, “... intersubjective meanings are constitutive of the social matrix in which individuals find themselves and act” (p. 48). Taylor also claimed that humans were uniquely self-interpreting and self-defining. Knowledge, therefore, is viewed as the property of internal cognitive processes operating within a shared social context. Presnell (1994) articulated the relativist position most clearly in stating that knowledge was an “...inventive, reflexive and socially inscribed process” (p.28).

Within this context, truth is considered to be a matter of, to use Guba and Lincoln’s (1994) term, the best-informed and most sophisticated construction, on which there is a “... relative consensus among those competent to interpret the substance of the construction” (Schwandt, 1994, p. 113). Truth, therefore, is a matter of judgement and because truth is assessed within a sociocultural context and is influenced by personal experience, several truths can exist at the same time. Furthermore, truths are not absolutes. Rather, they are continually being challenged by different or contradictory constructions and through the process of dialectic, new constructions or truths emerge (Guba & Lincoln, 1994). Furthermore, Guba and Lincoln

contended that knowledge was accumulated as more informed and sophisticated constructions surfaced and through vicarious experience.

Closely related to ontological concerns is the epistemological issue of the relationship between the knower and what can be known. Indeed, as Guba and Lincoln (1994) explained, the definition of reality that is adopted dictates the posturing of the inquirer, i.e. objective detachment versus interactive subjectivism. Since constructivists view the construct of reality as characterized by plurality and plasticity and moulded by social exchanges, adopting a stance which strives to uncover an objective reality or truth hardly seems appropriate. Rather, constructivists assume that the investigator and the object of investigation are inextricably linked and, therefore, focus on developing methods to capitalize on the transactional nature of research encounters (Guba & Lincoln, 1994; Presnell, 1994).

Research strategies or methodologies within the constructivist paradigm are guided by hermeneutical and phenomenological concerns. Both seek to "...elucidate and make explicit our practical understanding of human actions by providing interpretations of them" (Packer, 1985, p.1088). However, while phenomenology is concerned with individual meanings, hermeneutics concerns itself with how these meanings reflect the larger social context within which they are embedded. Research scope notwithstanding, both phenomenology and hermeneutics strive for the comprehension of meaning and since the aim of constructivist inquiry is to understand the meaning of social phenomena (Schwandt, 1994), either of these approaches is well-suited to the purpose.

Gadamer (1989) claimed that "understanding and interpretation have to do with the general relationship of human beings to each other and to the world.... The ability to understand

is a fundamental endowment of man, one that sustains his communal life with others and, above all, one that takes place by way of language and the partnership of conversation” (p.21).

According to Gadamer, consciousness and knowledge were articulated through language and speech and constituted the individual’s understanding of the world rather than merely representing it. Human understanding, therefore, was dependent on interpersonal communication and was achieved through conversation. Furthermore, it was not a goal to be achieved but an active mode of being. In other words, interpersonal understanding did not consist of the transmission of preexistent meanings from one person to another but was a creative or productive understanding that occurred in conversation.

Gadamer (1989) also claimed that interpersonal communication was a dialogical, dialectical and transformational process. Since understanding was a communicative process and individuals communicated through dialogue, a dialogical context constituted the necessary basis for further understanding. The dialogue type which best nurtured understanding was the dialectic or question and answer method since its purpose was to arrive at a better understanding of the subject matter, not to get inside others and relive their experiences. The dialectic was a process of back and forth questioning which served to challenge presuppositions and prejudices such that both partners made a significant advance over the position each maintained at the beginning. As White (1994) explained, achieving these ends required an openness to the possible truth of another person’s claim and an openness to the possible challenge these claims presented to one’s prejudices.

Finally, conversations were believed to be transformational in the sense that interlocutors were continually transformed by what they were talking about through creating insights, ideas

and solutions to problems that neither could have anticipated or generated alone. Thus, when conversational partners came to an understanding of the subject matter, their understandings were not the original property of any one person, but represented a new understanding of the subject matter (White, 1994). In line with this view, Presnell (1994) asserted that the research process represented a struggle on two levels: the researcher attempting to understand or grasp the reality of the respondents; and respondents struggling, throughout the encounter, to make sense of themselves and sense with the researcher.

Presnell (1994) also agreed with Gadamer (1989) that research findings were co-produced by both the researcher and respondents, and further claimed that, as mutually produced, such findings were invested with the power to evoke a common understanding. The methodological implications of the constructivist position are clear: a method which fosters transactions between the researcher and respondents is the best means of achieving an understanding of human phenomena. Thus, the research interview is the method of choice for constructivists.

In summary, the assumptions underlying the present study which was guided by a constructivist orientation were the following:

- individuals hold a symbolically constructed reality of self and society,
- knowledge is created through the construction of meaning,
- these constructions are moulded by personal and sociocultural factors,
- truth is not absolute but a matter of the best-informed and most sophisticated construction on which there is consensus at a given time
- the goal of research is to describe and elucidate the process of meaning construction in order to further understanding,

- human understanding is dependent on interpersonal communication which is dialogical, dialectical and transformational, and is achieved through conversation,
- the researcher, therefore, is inextricably engaged with the respondent and the process of meaning construction,
- resultant findings, therefore, are mutually produced and reflect a common understanding of the phenomena under investigation.
- finally, given that truth and knowledge are constantly being informed and reshaped, it must be acknowledged that although we can work toward a higher understanding of human experience, we will never have complete understanding.

Researcher Preparation

Bogdan and Biklen (1992) have claimed that a piece of research is only as good as the research tools used to produce it. In the case of qualitative research, therefore, where the investigator is often the research instrument, it is essential to have some sort of understanding of the experiences and qualifications the researcher brings to the study (Patton, 1990). This is particularly so in the case of research guided by a constructivist approach, in which the researcher participates in the production of the research text and, in analysing these texts, offers a reinterpretation of meanings shared during the research process. Thus, in an effort to satisfy this requirement without providing a detailed biographical sketch of my² background, the following discussion is limited to factors believed to have had an impact on my approach to the study.

² In an effort to reduce ambiguity and make the text more readable personal pronouns will be used in place of 'the researcher' when referring to myself, the researcher who conducted the present study.

Since I am quantitatively trained and did not have prior experience with designing and conducting a qualitative research study, a period of intensive immersion in the relevant literature was necessary. This involved exploring the philosophical canons of qualitative research as well as becoming familiar with practical issues of data collection and analysis. During this time, colleagues with qualitative research experience were consulted on a regular basis. In addition, design of the study was closely overseen by my thesis supervisor who has had extensive experience in qualitative research, particularly with respect to interviewing national level athletes, and the research protocol was subjected to approval by a panel of learned scholars.

Preparation for the activity of interviewing also required extensive reading and consultation, and led to the realization that there existed two schools of thought with respect to how interviews should be conducted. Proponents of the formal style of interviewing attempt to reconcile quantitative concerns with minimizing bias by proposing that interviewers use “structured” or “standardized” approaches, in which interview questions are formulated a priori and all respondents are asked the same questions in the same order (Dijkstra, Van der Veen, & Van der Zouwen, 1985). Furthermore, it is recommended that the researcher try to maintain a professional detachment and remain ambivalent to the responses offered during the interview sessions.

Alternatively, there are those methodologists (Denzin, 1970; Rubin & Rubin, 1995) who believe that the interviewer should be supportive and sympathetically understanding towards the respondent, as one would be in a typical conversation, particularly when the subject matter is of a sensitive nature. Dijkstra and colleagues (1985) referred to this approach as a socio-emotional style of interviewing and cited research findings which indicated that this particular style yielded

more personal information from respondents. Proponents of this technique are concerned with exploring unique and individual viewpoints and, therefore, require methods which afford the researcher the freedom to react to the respondents and proceed with the questioning based on the participants' responses.

Using an "unstructured" or "open-ended" approach, researchers develop broad questions which serve as an interview guide (Rubin & Rubin, 1995). However, the wording and sequence of the interview questions is determined as the interview unfolds. The inherent flexibility of these methods also allows researchers to explore issues which may arise throughout the course of the interview which were not or could not be anticipated beforehand. Thus, in light of the underlying assumptions of the constructivist paradigm, particularly with respect to the transactional nature of the research process, an open-ended interview approach which incorporated a socio-emotional style of interviewing proved to be a necessary condition to achieving the objectives of the current study.

In addition to deciding on an interview approach, the major preparatory step for the study involved becoming familiar with the literature on social support and sport injury in order to develop an interview guide tailored to the research purposes. As Gadamer (1989) wrote, "as the art of asking questions, dialectic proves its value because only the person who knows how to ask questions is able to persist in his questioning, which involves being able to preserve his orientation toward openness. The art of questioning is the art of questioning even further - i.e., the art of thinking" (p.367). Gadamer's position was clear, in order to participate in the dialectic, the researcher had to have a basic grasp of the subject matter. Furthermore, this understanding should be at a theoretical or conceptual level. Gadamer went on to explain that

the prejudices and presuppositions acquired through the process of becoming familiar with a particular topic were, in fact, the basis of conversation and the starting point of all understanding.

In essence, what Gadamer implied was that the researcher had to have some preconceived notions about a given topic in order to prepare for an encounter and know what questions to ask the respondents. However, the researcher also had to approach the interview with an openness and a willingness to have those prejudices refuted, and it was through this process of rebuttal that new understandings were created. In other words, by making explicit and exposing one's prejudices valuable insights were reached. Claiming to be objective or bias free was, therefore, counterproductive. As Deetz (1978) observed "the person who imagines himself free from prejudices not only becomes unconsciously dominated by them but cuts himself off from their positive insight" (p. 18).

Thus, in terms of the current study, immersion in the sport injury and social support literature allowed me to acquire a substantial number of presuppositions which guided the development of the interview guide and which were subjected to challenge throughout the course of the interviews.

Pilot Interviews

The final preparatory stages for the current study involved developing an interview guide and conducting a series of pilot interviews with several competitive athletes who had previously experienced a sport injury (n=5) and members of the Canadian Alpine Ski Team (n=5), including previously injured and non-injured athletes, the national team director and the director of sport sciences who was also the team physiotherapist. The objectives of these interviews were to (a) develop the interview guide, (b) develop an interviewing style which was both comfortable and

conducive to the research purposes, and (c) become familiar with the organizational structure of the Canadian Alpine Ski Team (CAST).

Originally, the research question had been limited to the coach's role in offering social support to injured athletes. This decision was based on suggestions put forth in the literature and the researcher's own intuition regarding the importance of the coach's involvement in recovery from sport injury. Although this assumption was not refuted, several of the pilot interviews revealed that the research focus was narrow in scope and excluded information about other members of the injured athletes' support network who had a significant impact on recovery.

The interview guide was redesigned in consequence and subjected to further testing. The revised version had been structured to account for the numerous aspects of social support identified in the literature and consisted of 15 questions. This detailed guide was tested on two competitive athletes and proved cumbersome and distracting, the main shortcoming being that it was difficult to focus simultaneously on the content of the athletes' responses and on ensuring that all relevant points were discussed. Through successive interviews with both competitive athletes and CAST members and in consultation with my thesis supervisor, the interview guide was pared down to seven general questions along with specific probes.

Essentially, the first question was designed to elicit demographic information and to give the athletes the opportunity to get comfortable with the researcher and with sharing their feelings. This priming question also allowed for a smoother transition to the topic of sport injury and social support issues which were addressed throughout the remainder of the interview. Probe questions were used to elicit more in-depth information regarding the athlete's feelings about events judged to be significant and to make explicit the links between these events and the

athlete's psychological state. Typically, the probes were worded as follows: "How did it make you feel when...?", "What was your reaction to...?", "What were you thinking when....?".

Finally, in addition to providing practical information, the wrap up questions regarding advice and recommendations gave the athletes the opportunity to confirm or refute something they may have said earlier. These questions were also useful because in offering advice, the athletes were usually explicit about the reasons behind their recommendations and this information served as a verification of the conclusions reached when analysing the data. The amended guide (see Figure 12) was tested with four more athletes and proved more manageable in that it allowed me to maintain a socio-emotional style during the interview sessions while covering the main topics of interest.

With a background in psychology, I was familiar with diagnostic interviewing but, as mentioned previously, I did not have any experience with conducting research interviews. Thus, the pilot interviews afforded me the opportunity to experiment with different stances and methods of questioning. As Rubin and Rubin (1995) pointed out, although qualitative interviews share many similarities with ordinary conversations, they are guided by a specific research purpose and, thus, require a considerable amount of skill. Furthermore, they suggested that practice was a very effective way of developing and refining qualitative interviewing skills.

Concerned with adhering to Brenner's (1985) recommendations that an interviewer must create an interaction that helps motivate the respondent to report adequately while at the same time trying to avoid biasing the responses by not reacting to the information shared, I found myself struggling to reconcile my natural desire to interact with the respondents on a humanistic level and the unnatural requirement of responding to their answers in an emotionally neutral

INTERVIEW GUIDE - SPORT INJURY

Preliminary stages: (a) introductory comments, i.e. tape-recording and information sheet
(b) establishing rapport

Warm-up question: Tell me why you ski.

Q1. Describe an injury that was difficult for you

probe for: timing (competitive season, off-season, Olympic trials, etc)
cause (equipment failure, judgement error, etc)
severity & duration
injury #1,2,3 ?

Q2. Describe impact of the injury

probe for: effects on mood (disposition, coping behavior)
" " confidence
" " motivation
" " ski career
" " relationships (team, coach, personal)

Q3. Describe rehabilitation experience

probe for: what were good days like?
what were bad days like?
obstacles
strategies employed

Q4. Describe what people did that was helpful/not helpful during rehabilitation

probe for: who did what & when?
why did it help?
nature of relationship w/coach, teammates, medical staff, loved ones
did this change during course of injury or from one injury to another?

Q5. Can you think of anything that would have made recovery a better experience?

probe for: what, from whom & why?

Q6. What is your impression of coach or team's involvement in recovery process?

Q7. What recommendations or advice do you have for: injured athletes, medical personnel, ski team

Wrap-up question: Is there anything we didn't cover that you would like to add?

Debriefing:

- (a) discuss impressions of the interview session
 - (b) ask if there is an athlete in particular that I should interview
-

Figure 12. Interview guide used in the current study

tone. Rather than stripping the interview of its inherently humanistic characteristic, I chose to capitalize on this aspect of the encounter and interact with the respondents in a sympathetic and compassionate manner. Not only did I feel more at ease with this demeanor but I felt it was more conducive to achieving the research objectives.

Indeed, Rubin and Rubin (1995) acknowledged that maintaining neutrality was undesirable and a hindrance to the research process in that it kept the researcher from establishing an empathetic bond with the respondent and, therefore, reduced the likelihood of obtaining in-depth personal accounts. They pointed out that the researcher's interest and concern encouraged respondents to discuss topics at length. Furthermore, the ability to accept and share emotion legitimized its expression in the interview.

It must be underscored that the decision to adopt a socio-emotional interviewing style was reached after much reflection; as a neophyte researcher trained in quantitative methods, I was concerned with how employing such a method could jeopardize the integrity of the study. In retrospect, however, I can state with confidence that the resultant quality of the study was enhanced because I was able to interact with the respondents on a personal and empathetic level and to maintain that tone throughout the interview sessions. In doing so, I successfully created an atmosphere in which participants felt comfortable and encouraged to share their insights, as was confirmed in post-interview debriefing sessions. Furthermore, by being liberated from methodological constraints, I was able to devote my energies to engaging in a true dialectic with the respondents in an effort to reach a higher understanding of their experiences with sport injury.

Finally, without having had prior exposure to the CAST environment, it was necessary to

learn about the organizational structure of CAST in order to familiarize myself with contextual features of the athletes' environment and to identify situational factors which may have had an impact on how injured athletes were treated by the ski team. For example, the national team director and team physiotherapist confirmed that the CAST protocol for dealing with injured athletes was heavily influenced by financial and geographical constraints. Also, being aware of who the key decision makers were in the CAST organization provided a backdrop against which research findings could best be understood. The pilot interviews with members of CAST also exposed me to "ski" terminology which enabled me to communicate more effectively with the athletes during the interview sessions.

Study Participants

In a qualitative study, sampling is said to be purposeful because study participants are selected on the basis of (a) their experiences with and knowledge about the phenomenon being investigated and (b) their willingness to share that information (Robin & Robin, 1995). Thus, members of CAST who had experienced and recovered from a serious³ sport injury were invited to participate in the present study. The decision to explore the experiences of national level skiers was influenced by a number of factors.

The literature suggests that sport injury may have a significant psychological impact on high performance athletes. Thus, in view of the large number of stressors faced by these athletes, it was reasoned that the influence of social support on coping with injury would be highly visible within this group. The sport of skiing was selected because of the high incidence of injuries in

³ 'Serious' injuries, as defined by the athletes, were those requiring hospitalization or resulting in a minimum two-month absence from skiing.

this sport, particularly at the national level. In addition to meeting these requirements, members of CAST were chosen because of my research supervisor's affiliation with CAST as the sport psychology consultant for the women's team. Therefore, accessibility to this group was ensured. Also, the research supervisor knew of team members who had exceptional recoveries and who could, therefore, offer interesting perspectives on the experience of sport injury and rehabilitation.

A proposal was developed and submitted to the ski team director who provided a list of names and addresses of current CAST members and former members whom the director felt would be suitable candidates for the study. In total, 12 current and former members of CAST were interviewed. As shown in Table 1, the athletes varied in terms of their experience with injury, their recovery status and position on the team, i.e., rookie versus veteran. Although, the scope of the study had been limited to the influences of social support on sport injury, two athletes who had suffered illnesses were included in the sample because of the particular stresses engendered by these conditions

Interview Setting

With the exception of two athletes who were interviewed at their homes and one at his place of business, study participants were interviewed at their last ski camp prior to entering the competitive season. This choice of timing and location entailed a number of advantages, while imposing certain limitations on the study. One of the main advantages of being present at the ski camp over a four-day period was that I had the opportunity to interact with the athletes on an informal basis, i.e dining with them. Thus, in becoming acquainted in a relaxed environment, rapport could be established prior to the interview sessions.

Table 1
Demographics on study participants

Athlete	With CAST since	Career Best	Injury/Illness type	Injury #	Recovery time/mos
A1	1987	WC - 5th	ACL	1st	24
A2	1992	WC - 15th	Chronic Fatigue Syndrome	1st	24
A3	1985	WC - 3rd	ACL Broken pelvis	1st 2nd	7 18
A4	1985	WC - 1st	Herniated disc ACL MCL tear ACL-MCL	1st 2nd 3rd 4th	2 6 1 7
A5	1989	WC - 1st	ACL Nerve damage to back/hand	1st 2nd	6 12
A6	1994	*	Shin splints	1st	--
A7	Retired	Olympian	Concussion Concussion Concussion Concussion	1st 2nd 3rd 4th	1 + 1 + 1 + 1 +
A8	1994	*	ACL + broken hand	1st	--
A9	1990	WC - 20th	Mononucleosis	1st	12
A10	Retired	Olympian	ACL (ended career)	8th	8
A11	Retired	Olympian	ACL	7th	10
A12	Retired	Olympian	ACL	1st	10

Note. CAST = Canadian Alpine Ski Team, WC = World Cup circuit, Injury # = injury referred to in the interview, * = statistics not available for these athletes, and -- = athletes not recovered at time of the interview.

Because the athletes had very busy schedules which changed frequently throughout the day, interview appointments were always tentative and subject to last-minute cancellations. This resulted in a lot of “free” time which was used to talk with and informally interview the coaches, athletic trainers and other members of the CAST organization. Also, despite my 18 hour/day availability, scheduling conflicts were such that not all athletes who had expressed a desire to participate could be interviewed during my visit.

The fact that the national team director and director of sport sciences I had previously interviewed were present at the camp proved fortuitous because I did not arrive “cold” but had allies who were very supportive and instrumental in introducing me to the athletes and coaches and in arranging interview appointments. Also helpful was the fact that my research supervisor was present at the ski camp to do some sport psychology consulting with the athletes. Thus, it was likely that in learning of my affiliation with the sport psychology consultant, the athletes would associate me with their consulting experiences. In other words, if they had a positive experience with the consultant, they might expect that the research interview would also be a positive experience and, therefore, be motivated to participate.

Athletes were also encouraged to participate by athletes I had already interviewed both prior to the camp and during the camp. For example, after their interviews, a number of athletes approached me to inform me that they had advised fellow athletes to meet with me. Thus, word of mouth was a definite advantage to interviewing on-site. Being on-site, however, required a certain amount of discretion and diplomacy. For instance, some coaches volunteered information on the athletes I had interviewed and were curious to learn about the content of the interviews. I was also asked to talk to a “problem” athlete to try to get the athlete “back on track”.

In terms of the timing of the interviews, it has to be recognized that because the athletes were going into a competitive season, sport injury was an especially unpleasant topic for discussion. Thus, it is possible that, although willing to participate in the interviews, the athletes may not have been as explicit as possible regarding the emotional impact of injury because they could have been trying to preserve a mind set conducive to performance. In other words, fully revisiting an experience such as injury could have aroused negative emotions such as fear of reinjury, thereby threatening the athlete's feelings of self-confidence. For this same reason, I was restricted in terms of how deeply I could pursue issues which arose throughout the interviews. In retrospect, the end of the competitive season may perhaps have been a better time to conduct a study on the topic of sport injury.

Interview Protocol

With the exception of two interviews which took place in a public setting, all interviews took place in a private room. All interviews were tape-recorded and typically lasted from 45-60 mins. The interview guide developed from the pilot interviews (see Figure 12) served as the basic framework for the interview sessions. The format of the sessions was made up of three basic components, introductory comments regarding the purpose of the study, interview guide questions and a post-interview debriefing.

When the athletes arrived for their interview appointments, my first objective was to make them feel comfortable. This usually consisted of informal chit chat which showed interest in the athlete, i.e., inquiring about their training runs. While I set up and tested the recording equipment, the athletes were given a take-away information sheet describing the study. The purpose of the study was then reiterated and the athletes were informed of why they were invited

to participate in the study, i.e., to share their valuable insights. Permission to record the sessions was solicited from the athletes and they were reassured of the measures taken to ensure confidentiality.

The athletes were also briefed on the purpose of the interview guide, i.e. to help me stay on track, and were informed that I might be writing additional questions as they spoke since I did not wish to interrupt them as they spoke. This point was made clear because I did not want the athletes to feel that they were being evaluated on the content of what they were sharing. This misperception could have made them self-conscious, thereby affecting the quality of their disclosures.

A socio-emotional interviewing style was adopted throughout the interviews. This involved showing empathy and concern for the athlete and reacting in an appropriate manner to information shared, i.e., validating their feelings or laughing when they were being humorous. The conversational tone was relaxed and rapport was maintained throughout the interviews by maintaining a comfortable level of eye contact and respecting the athletes' desire to explore a particular issue in-depth or to change topics altogether.

It became apparent that some of the questions put to the athletes were issues that they had not considered beforehand, therefore, they were given the freedom to work them through during the interview sessions. Sometimes this led to expressions of confusion or self-doubt to which I responded as a caring and compassionate individual. However, it must be acknowledged that in offering comfort or advising a respondent who was visibly upset, I wondered whether I was crossing a line between research and counselling. Was the sharing of knowledge which could potentially help the respondent during the interview sessions straying from engaging in dialectic

toward a therapeutic intervention? On the few occasions that this situation did arise, my actions were motivated by a concern for the athlete's well-being even if it meant abandoning the research objectives. Fortunately, these rare instances were managed effectively and none of the interview material had to be discarded.

When the interviews were terminated, the athletes were asked to give feedback on the sessions and invited to contact me if they thought of additional information they wanted to share. I also recorded my own reactions and feelings regarding the interview sessions on contact summary sheets⁴. Essentially, the contact sheet consisted of impressions of the interview session, impressions of the athletes' composure, main points discussed, and issues or questions raised. A completed contact sheet is included in Appendix A. This exercise allowed me to reflect on issues raised in the sessions and to incorporate them into the next interview session, if appropriate. The time between interviews was also used to listen to the tape recordings to ensure that they were audible and to verify whether the text was comprehensible or in need of further clarification.

Data Preparation

Tape-recordings generated from the interviews were transcribed *verbatim* in order to produce workable texts which could be analysed. Wherever necessary, texts were edited in the interests of rendering them more readable. In most instances, this consisted of deleting repetitive or ponderous phrases, such as "well, uh, well, ummm". However, if removing the phrase altered

⁴ Miles and Huberman (1994) recommended this technique as a means of capturing first impressions, planning for the next contact, reorienting yourself to the contact when doing the write-up, and helping with further analysis since they can be coded.

the essence of the quote, it was retained. Once transcribed, interview recordings were listened to again while reading through the texts to ensure accuracy of the transcriptions.

Another measure taken to ensure the accuracy of the data was to send a printed copy of their interview transcript to each of the participants. The package sent to the athletes included the transcript, a cover letter asking them to review the transcripts (which they were to keep) to ensure that their thoughts were accurately represented in the texts, and a postage-affixed response card on which they were to indicate whether significant changes to the texts were required and whether they wanted an abridged copy of the study results. Of the 10 response cards returned (83% return rate), two athletes had indicated a need for text modification. These athletes were contacted by telephone and necessary corrections were made to their interview texts.

Data Analysis

In order to situate the data analysis procedures for the current study within their proper methodological context and to elucidate the principles guiding the present analysis, a few preliminary remarks about qualitative analysis are in order.

Preliminary Remarks on Qualitative Analysis

Qualitative analysis can be conceptualized as a circular process alternating between three inter-related processes: description, classification and connection (see Figure 14). Basically, the procedure involves generating thorough and comprehensive descriptions of the phenomenon from the text, breaking them down into segments of data which contain one idea, episode, or piece of information and classifying them according to concepts⁵ or themes suggested by the text.

⁵ Dey (1993) defined a concept as “an idea which stands for a class of objects or events” (p. 18). The terms concept and theme are used interchangeably in this thesis.

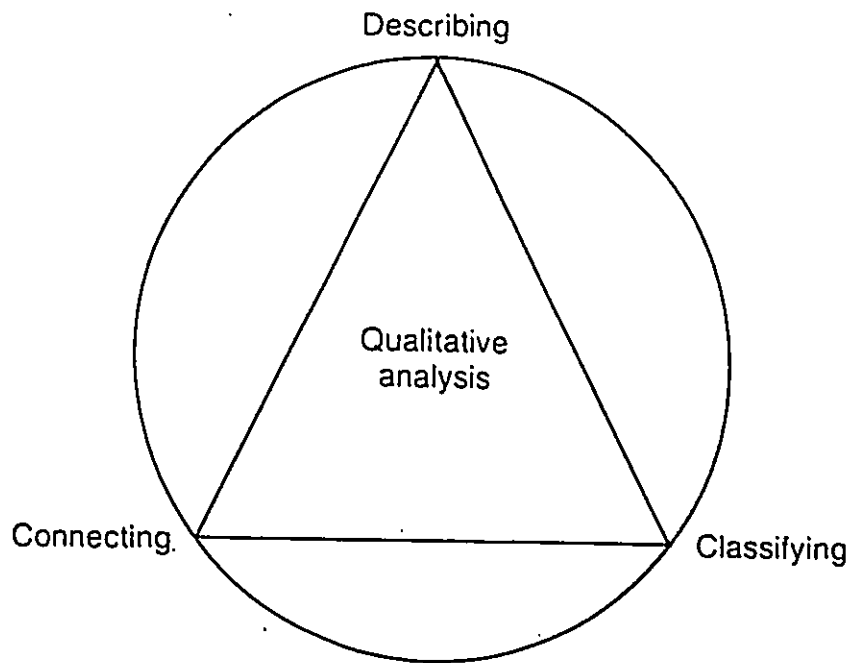


Figure 14. Qualitative analysis as a circular process from Dey (1993).

The emerging concepts and the connections made between them provide the basis for fresh descriptions which are then verified against the data for accuracy and inclusivity until all themes emerging from the text are accounted for (Dey, 1993). Dey described this process as an ongoing dialectic in which the ideas shaped by the data are tested against the data to ensure that inferences are correct.

Several methods of proceeding through these phases of analysis have been advanced in the literature. Tesch (1990) reviewed these procedures and concluded that they shared many commonalities in terms of the principles and practices professed. Listed here are those relevant to the current study.

1. **Analysis is not the last phase in the research process; it is concurrent with data collection (Tesch, p.95).** For example, what is learned in an encounter will determine the nature of the subsequent encounter, i.e., what to ask and whom to ask. Thus, data collection and analysis are said to inform each other (Miles & Huberman, 1994) as they become integrated in the research process (Glaser & Strauss, 1967).
2. **Data are segmented into relevant and meaningful units, yet the connection to the whole is maintained (Tesch, p 95-96).** As Tesch explains, segmenting the data renders it more manageable and accessible for analysis. A meaning unit is a “segment of text that is comprehensible by itself and contains one idea, episode or piece of information” (Tesch, p. 116). Thus, meaning units are carved out of the text such that their meaning is retained when encountered out of context. However, they are always considered in relation to the entire text.

3. **Data segments are categorized according to an organizing system that is predominantly derived from the data (Tesch, p. 96).** Categories⁶ are derived inductively from the data as a result of the researcher 'interrogating' the data for themes and concepts. For example, in asking what a given passage or meaning unit is about, the researcher generates answers which serve as labels describing a particular theme or concept.
4. **Categories for sorting segments are tentative and preliminary in the beginning; they remain flexible (Tesch, p. 96).** Since categories must accommodate all the data, they are constantly being modified until a satisfactory system is established. This involves a process of constant comparison with the goal of discerning conceptual similarities, refining the discriminative power of categories and discovering patterns. Thus, by splitting some categories and combining others, a conceptual framework emerges (Dey, 1993).
5. **The analysis process is systematic and comprehensive, but not rigid (Tesch, p.95).** As Tesch pointed out, there isn't a singular correct way of doing qualitative analysis. Rather, "it is possible to analyse any phenomena in more than one way" (Spradley, 1979, p.92), and "each qualitative analyst must find his or her own process" (Patton, 1980, p. 299). Tesch cautioned, however, that researchers need not be limitlessly inventive but should proceed in an orderly, disciplined and organized manner, for qualitative research "requires a great amount of methodological knowledge and intellectual competence" (p. 97).

⁶ Dey (1993) offered the following definition of a category "a concept unifying a number of observations have some characteristics in common". (p. 96).

6 The result of the analysis is some type of higher level synthesis (Tesch, p. 97).

Although much of the analysis process consists of breaking the data apart, the ultimate goal of qualitative analysis is the production of a larger, consolidated picture of the phenomenon being investigated. By teasing out conceptual connections from a mass of details, a better understanding can be achieved.

Having laid the foundation for the methodological framework which guided the data analysis for the current study, the discussion now turns to a description of the specific procedures followed in the present research.

Interrogating the Data

Being an inexperienced qualitative researcher, the inherent freedom associated with qualitative analysis often proved to be an obstacle rather than an advantage. With no prescribed formula outlining analysis procedures, I frequently found myself doubting whether I was proceeding correctly. It seemed that the conceptual aspects of analysis were frustratingly elusive while the mechanical aspects were embarrassingly obvious. As a result, I found myself adopting a variety of strategies described in the literature, i.e., pattern coding (Miles & Huberman, 1994), only to abandon them when it became apparent that I had reached an impasse.

Eager to begin the analysis, I had, in fact, become overly concerned with the mechanics of analysis and lost sight of the purpose of my study; I was going through the motions without understanding why I was doing so. Thus, before proceeding with an interrogation of the data, I had to interrogate myself. What were the objectives of my study? What was the information that needed to be shared? What was the most effective way of communicating this information? In the most basic terms, I wanted to know what was or was not helpful to injured athletes and why.

In other words, how did certain events affect their recovery. In reacquainting myself with my research goals, I was able to approach the data with the intention of identifying factors which affected the recovery process in either a positive, negative or neutral manner. Analysis, therefore, began with a series of clumsy attempts which eventually led me onto the right path.

Equipped with a solid grasp of what I wished to accomplish in analysing the data, I re-read the transcripts, bracketing⁷ passages which seemed relevant to the research purposes and writing marginal notes summarizing the concept encapsulated in the passage. For example, the following segment of text was annotated as an example of the psychological impact of non-diagnosis: "I didn't know that I had Chronic Fatigue Syndrome for about a year. So it was a really tough time for me mentally because I thought I was just being a wimp, pretty much." Marginal notes also consisted of my impressions as to what was going on, inferred relationships between variables and questions raised. For example, in the margin next to a passage in which the athlete mentioned being able to receive physiotherapy treatment without being scheduled, the following question was noted in the margin: "Was this because of a special relationship with the physiotherapist or because this was an Olympic athlete?"

Unmarked copies of the interview transcripts were also given to a fellow researcher, who had skied competitively and who had suffered a sport injury, to read through and to annotate. Once returned, I read through my colleagues' notes and compared them to my own to ensure that our impressions, inferences or conclusions were congruent and to obtain a fresh perspective on the interview data. My colleague had raised several points which were not so much

⁷ This is similar to the process of identifying meaning units or carving out text segments described by Tesch (1990).

disagreements or rebuttals but suggestions of alternate explanations. We met to discuss these rival hypotheses and through the process of dialectic decided on which were the more plausible conclusions based on the data.

Once all necessary modifications were made to the annotations, I read through the transcripts again, this time writing summaries for each interview. This exercise enabled me to organize the material and forced me to come up with headings under which salient points were to be listed. Thus, when a passage referred to interactions with physiotherapists, for example, the heading physiotherapist was created and the impact of this interaction was listed below it, i.e. physiotherapist - always encouraging, made things a lot easier. Summaries were written up for each interview using the same headings or category names and incorporating new ones which emerged throughout the process such that all relevant data was included. The transcripts were then re-read and compared to their summaries to ensure that all relevant points had been noted.

The summaries were also compared to their corresponding contact summary sheets and verified against initial impressions to see whether there was additional information which could affect the interpretation of events that needed to be considered. For example, I interviewed an athlete who had discussed an injury several times with the media and it was my impression that, although assured of confidentiality and anonymity, the athlete treated the research interview as a media interview, i.e., a forum for gathering information that would be made public. Thus, the aloofness exhibited in the interview may not have been a true reflection of the experience of injury but a strategy for protecting one's privacy.

Flow charts for each interview were also developed as a means of regrouping headings

and attempting to determine the associative, causal or temporal relationships between them⁸. The next step involved consolidating the information from the summaries. Thus, I proceeded category by category and listed under each one the points from all the interview summaries, distinguishing between positive and negative effects on the athlete's coping. In order to be able to trace the points back to their sources, interview code numbers were recorded in brackets next to each point.

The decision to list a point under a particular heading was not always clear cut. Indeed, there often were instances in which it seemed that points or items could be listed under more than one heading or that a new heading had to be created altogether. This indicated a need for category refinement. Thus, the next task was to review the category sheets to determine which categories should be combined or subsumed under more abstract categories and which categories needed to be subdivided. This involved ensuring that salient points still belonged to the newly formed categories. For example, items listed under the category heading 'lessons' included valuable lessons the athletes had learned about rehabilitation and about the return to sport. Thus, the items were subcategorized accordingly and the subheadings 'lessons about rehabilitation' and 'lessons about return to sport' were formed.

A check against the original category sheets and the newly formed category sheets was done to ensure that all the salient points were accounted for. The interview transcripts were reread as another means of checking that all salient points were accounted for and also to ensure that the newly formed category names were coherent with the data. Returning to the data also

⁸ Miles and Huberman (1994) described this strategy as an economic way to see relationships and to get an initial sense of the data.

gave me the opportunity to consider the categories in a holistic context and provided a basis on which their connections or fit could be more readily determined. These impressions were recorded as marginal notes on the category sheets and integrated into the final write-up.

Careful readings of the interview transcripts revealed that the athletes' social support needs varied across three principal phases which typified the injury experience: (a) the injury phase which covered the occurrence of the injury leading up to rehabilitation or recovery, (b) the rehabilitation/recovery phase leading up to the return to sport, and (c) the return to sport phase, i.e. training and competing with the team. In keeping with the chronological boundaries suggested by the data, the analysis was governed accordingly. Thus, the categories were regrouped or sub-divided in accordance with the injury phase to which the items pertained. Items referring to lessons learned and advice to social support providers were included in a separate section as a post-scriptum.

Working section by section, I considered how the categories related to each other and how these relationships could best be represented graphically. This was an intellectually demanding task since it required synthesizing a mass of data into a concise system of boxes and circles linked by arrows which demonstrated the relationships between them. This process involved drawing several flow charts, each time questioning the accuracy of the display and verifying it against the texts, before a final diagram encompassing all four sections was developed. This final diagram composed of categories and their items was presented to my research group which comprised my research supervisor, the colleague who had read and annotated the interviews and two other qualitative researchers. Category names and items were examined in detail and a dialectic ensued in which findings were challenged and the inductive

reasoning guiding the analysis process was made explicit⁹.

Satisfied with my representation of the data, I numbered the various categories and sub-categories and read through the interview transcripts to locate representative quotes which were then labelled in accordance with the category numbers to which they corresponded. This exercise confirmed the congruence between the category headings, the items they subsumed and the text segments they represented, and facilitated locating relevant quotes when writing up the research findings. Additionally, the text could be quickly scanned for unmarked segments and verified to ensure that they did not contain significant data that had been overlooked in earlier stages of analysis.

Once all the texts were marked, a period of intense reflection ensued in which the mechanical aspects of data analysis were put aside, while the conceptual aspects of analysis continued at an abstract level. In other words, I took time out to just think about the interviews and the analysis process. Had I represented the data as accurately and as concisely as possible? Were the research objectives reflected in the display that I had developed? In thinking about these issues and looking at my display, I realized that my flow chart was heavily descriptive and failed to demonstrate how social support affected recovery. I, therefore, returned to the literature to reexamine the premises on which I had based my study. I had to recapture those presuppositions that I had brought with me into the interview setting and allow them to be confirmed or refuted by the data. For example, how did the athletes' coping strategies fit in with the cognitive appraisal model of stress and coping? In re-interrogating the data in such a manner,

⁹ Guba and Lincoln (1989) referred to this process as 'peer debriefing' and added that such an exercise contributed to the credibility of the findings.

a more sophisticated level of understanding was reached which led to the development of a more comprehensive model of the experience of injury and rehabilitation.

This revised model was subsequently presented to members of my research group and feedback was also solicited from other fellow researchers, some of whom had experience with sport injuries. Additionally, the model and preliminary results of the study were presented at a scientific congress (Bianco & Orlick, 1995). Finally, a preliminary report of relevant findings was submitted to the Director of Sport Sciences for CAST.

Validating the Current Study

Validity claims are fundamental to evaluating research findings since they centre on how confidently one can accept the conclusions put forth. Since quantitative and qualitative research are based on different ontological and epistemological assumptions, it does not make sense to use criteria of representativeness associated with quantitative research to evaluate findings yielded from qualitative studies (Stewart, 1994). Rather, the interpretive approach holds that validity assessments are situationally and communicatively accomplished and are, therefore, based on different criteria. Qualitative researchers are concerned with ensuring trustworthiness of the findings demonstrated in terms of integrity, accuracy and validity (Patton, 1990; Stewart, 1994).

In essence, the value of a qualitative study is based on the extent to which conditions leading to a higher understanding of the phenomena under investigation were present in the study (Stewart, 1994). This includes the nature of the interaction between the researcher and the participants and the method of reasoning guiding the analysis. Gadamer (1989) claimed that the discipline of questioning and inquiry was a discipline that guaranteed truth. Thus, from a Gadamerian perspective, the process of dialectic serves as a model for validity assessment.

Furthermore, this method of questioning extended beyond the production of data to the interpretation of the data. The verisimilitude of these interpretations are determined on the basis of what Fisher (1987) referred to as 'narrative fidelity' or the fit between the researcher's arguments and the reader's experience. Thus, in line with constructivist claims, the reader with experience or knowledge in a given domain is the most competent to assess the validity or truth value of the research findings.

Given the above, the following points outline the measures taken to ensure trustworthiness in the current study:

1. The development of the interview guide was informed by the research objectives and information obtained in pilot interviews.
2. Sampling was purposive and designed to include those individuals who could provide numerous perspectives on the subject matter.
3. The unstructured nature of the interview sessions paved the way for dialectical exchanges between the researcher and the participants and a socio-emotional interview style fostered personal disclosures.
4. Accuracy of the interview transcripts was ensured by giving respondents the opportunity to review and modify the texts.
5. The reasoning guiding the analysis procedure was made explicit by describing both the mechanical and conceptual aspects which led to the understanding of the research data put forth.
6. This understanding of the data was informed by an ongoing dialectic between the data and emerging theories and hypotheses and supported by representative quotes

from the interview texts (see next chapter) which clearly demonstrate proposed links between variables.

7. Several checks were incorporated throughout the process to ensure the accuracy of inferences and the inclusivity of all relevant data. These included having a fellow researcher read and annotate interview texts, peer debriefing and cross-referencing data.
8. The presentation of the research data has been organized according to the study objectives and to facilitate an understanding of the social support influences on recovery from sport injury.
9. Finally, the resultant model was presented at a scientific congress and a preliminary report was submitted to the CAST.

Before turning to the next chapter in which the results of the current study are presented, I would like to close with the following remarks. Gadamer (1989) contended that it was never possible to arrive at a final understanding because understanding was continually renewed by each conversation. Given the dynamic nature of human understanding, Taylor (1985) argued that the true value of an understanding lay not in the act of understanding itself but how that understanding informed the practices it was designed to explain. Thus, in terms of the present study, the results are not offered as a means of presenting a theory of sport injury and rehabilitation. Rather the intention is to shed light on the experiences of a distinct group of individuals in the hopes that the information and insights shared will contribute to an understanding among athletes and support providers as to how recovery from sport injury may be facilitated or enhanced.

PRESENTATION OF RESULTS

Presented in this chapter are data which emerged within a constructivist framework. Thus, the results discussed hereunder reflect my interpretation of the athletes' constructions of their experiences with injury¹⁰ and rehabilitation¹¹. Although I participated in the process of meaning construction and was, thus, able to form an immediate impression of the athletes' experiences, interview data were subjected to a rigorous and thorough analysis procedure to ensure the trustworthiness of the resultant findings.

As mentioned in the previous chapter, both the study design and analysis process were guided by a number of research objectives. Thus, to situate the ensuing presentation of results within its proper context, the study objectives are reiterated. The present study set out to:

1. Identify the social support needs of skiers throughout the course of their recovery,
2. Determine if the athlete's perception of available or received social support affected their recovery.
3. Identify key sources of social support during the athletes' recovery.
4. Investigate the role of social support as a coping resource during recovery.
5. Make recommendations to athletes and their support providers regarding sport injury and social support.

Given the scope of the research question, a substantial amount of data was generated, 150 pages of interview text, and the task of synthesizing and representing the relevant findings in a

¹⁰ In the interest of simplicity, the term 'injury' will be used throughout the text to refer to both injury and illness, unless otherwise specified.

¹¹ The terms 'rehabilitation' and 'recovery' are used interchangeably throughout the text to refer to the treatment period up until its completion or the return to sport.

concise and comprehensive format proved most challenging, particularly since there are a number of ways of displaying a single set of data. In fact, it is not unlikely that another researcher working with the same interview transcripts would come up with a different way of sharing the results. What is important, however, is that the essence of what is being transmitted remains consistent. This being said, the present research findings are represented in the form of a flow chart (Figure 15) in order to demonstrate that sport injury was a process influenced by a number of factors at various stages. Also, because the model is a closed loop system connected by directional arrows, the relationships among the variables are more easily discerned.

The model has been designed to respect the chronological boundaries between the three principal phases of the injury experience suggested by the data, namely (a) the injury phase which covered the occurrence of the injury leading up to rehabilitation or recovery, (b) the rehabilitation/recovery phase leading up to the return to sport¹², and (c) the return to sport phase, when the athletes began training and competing with the team. It is important to note that, throughout the data, the demarcations between phases were not always clear and, in fact, they often overlapped. However, separating the stages in such a manner serves to highlight the dynamic aspect of the injury experience and to recognize the various stresses and social support needs associated with each stage and how these may fluctuate throughout the process.

Thus, presentation of the findings has been organized into four major sections. The three phases of the injury process will be examined individually and the model components will be discussed in detail. In addition, a brief section summarizing the support received throughout the

¹² With the exception of the athlete who had a career-ending injury and did not return to skiing.

SPORT INJURY PROCESS MODEL

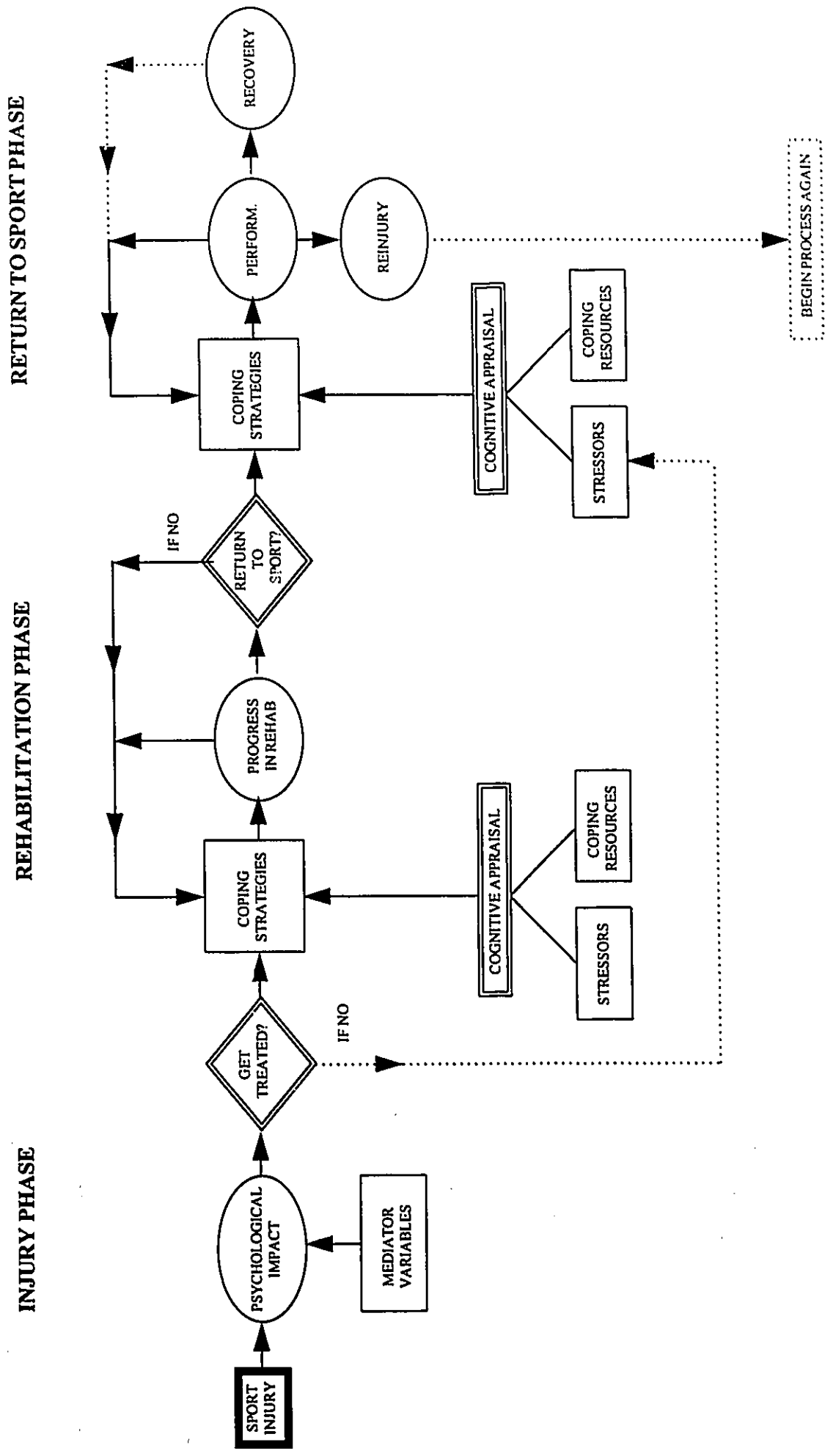


Figure 15. Sport injury process model

injury process will be included before turning to the fourth major section outlining advice and recommendations to athletes, coaches and the team management. The organizational framework guiding the discussion of the items within each of the major sections is based on categories and sub-categories which emerged from deliberate readings of the interview transcripts. In order to facilitate comprehension, the category headings or theme and concept labels capturing the essence of the data have been highlighted in bolded text throughout the discussion. Also, as a means of demonstrating the links between the different groups of variables, the themes are displayed in a flow chart at the end of each of the first three sections as sub-units of the larger process model displayed in Figure 15.

Wherever possible, representative quotes from study participants have been included as a means of demonstrating item origins and their relevance to assigned categories. In some cases, however, the findings discussed reflect a holistic understanding which emerged from considering all aspects of the interviews as a whole and, therefore, could not be supported by direct quotes. Where quotes were used, participant anonymity was maintained by using a numeric identification label to identify the source of the quote. Furthermore, to preserve credibility and give the reader an overall appreciation of the participant pool, an effort was made to use as many relevant quotes as possible from each participant. For technical reasons, interviews with two of the study participants could not be transcribed. In both cases, field notes were taken immediately following each of these sessions. Thus, while quotes from these individuals were unavailable, their views were, nonetheless, reflected throughout the text.

Finally, since the underlying purpose of the methodology used was to gain an in-depth understanding of sport injury as experienced by international level skiers, all relevant data has

been reported regardless of how much support was expressed for each point. In acknowledging individual differences and diverse points of view, the breadth of the information shared is expanded and a more sophisticated appreciation of the experience of sport injury emerges. In other words, the reader's understanding is not limited to the manner in which sport injury is typically experienced but includes an awareness of the numerous ways in which it can be experienced as a result of the interaction of personal, social and environmental factors.

Setting the Stage

Before turning to a discussion of the phases of the injury experience, it is essential to gain an appreciation for some of the environmental factors which came to bear on the athletes' experiences. The ski team is a non-profit, national sport organization surviving on minimal government funding and private sponsorship. This posed a number of limitations on CAST including the inability to provide financial assistance to its injured athletes other than flying them home for surgery. This also affected their ability to keep injured athletes on the team for an extended period of time. In fact, from the time of injury, athletes were usually given one year to produce satisfactory results in order to remain on the team. However, this time limit varied, and was often influenced by budgetary constraints and, in some cases, the athlete's performance record.

At the time of the study, all medically related matters were handled by the Director of Sport Sciences (DSS) who was also the team physiotherapist. The DSS ensured that athletes were fit and that they received the necessary medical treatment. The injuries discussed in this study all occurred within a sport setting, i.e., during training or competition. Typically, when an athlete is injured, the on-site medical team makes an initial assessment and, depending on the

severity of the injury, the athlete is treated on-site or sent home for treatment. In all the cases included in this study, further medical attention than that offered on-site was required. Thus, nine athletes were removed from the ski team environment and sent home for surgery and rehabilitation and three were sent home to convalesce.

The surgery was usually performed by a doctor affiliated with the ski team or by someone whom the athlete knew of by reputation. Because the athletes were spread out across the country, an effort was made to arrange for medical assistance close to their home base. Often, the attending surgeon recommended a physiotherapy clinic. However, the majority of these clinics were located in city centres and since most of the athletes lived in more remote areas i.e., near ski hills, the recommended clinics were usually inaccessible and the athletes had to make alternate arrangements. As a result, some athletes received treatment in sport medicine centres while others were treated in physiotherapy clinics which catered to the general public.

In addition to its relation to the type of treatment available, the geographical diversity of team members also had an influence on social support factors. For example, since CAST did not have a regional training base, the athletes trained on their own and were united with team members only during ski camps and when touring the competitive circuit. This meant that athletes could potentially benefit from two support networks, one at home and one with the team. Thus, when athletes were injured and removed from the team environment, members of the home social network became the key support providers. By the same token, when the athletes returned to training and competition with CAST, support responsibilities were transferred to the team members, i.e., teammates, coaches and the team management. Although distinct, the two networks need not have been mutually exclusive. In fact, as will be demonstrated, contact with

the team at all times was desirable and often beneficial to the athlete's well-being.

Finally, it must be noted that the injuries discussed throughout the interviews spanned a 15 year period. Thus, apart from individual differences, the diversity in the athletes' experiences with injury also reflected sociohistorical factors with respect to the treatment of sport injuries and the resources made available to recovering athletes. The ski team had also undergone significant policy and staffing changes over this time period which may inevitably have had an influence on the injured athletes' experiences. Therefore, when considering the study findings with respect to the support athletes received from their coaches and CAST, it is important to bear in mind that these results may not necessarily reflect the current status of the ski team and the treatment of injured athletes.

Injury Phase

Items included in this section are those which were immediately relevant at the time of the injury up until the beginning of treatment or, if treatment was not sought, the return to sport. Three major aspects of this phase were identified: the psychological impact of injury, the variables mediating that effect and the decision to seek treatment. Each of these components is discussed separately and the relationship between them is illustrated in Figure 16.

Psychological Impact

The immediate impact of injury on the athlete was difficult to isolate because when the athlete's were reflecting on their experiences, they often related an overall impression of having been injured and gone through the recovery process. Thus, it became difficult to disentangle the impact of injury from the impact of rehabilitation. This raised doubts as to whether the athletes were describing their reactions to the actual occurrence of injury or whether they were relating

INJURY PHASE

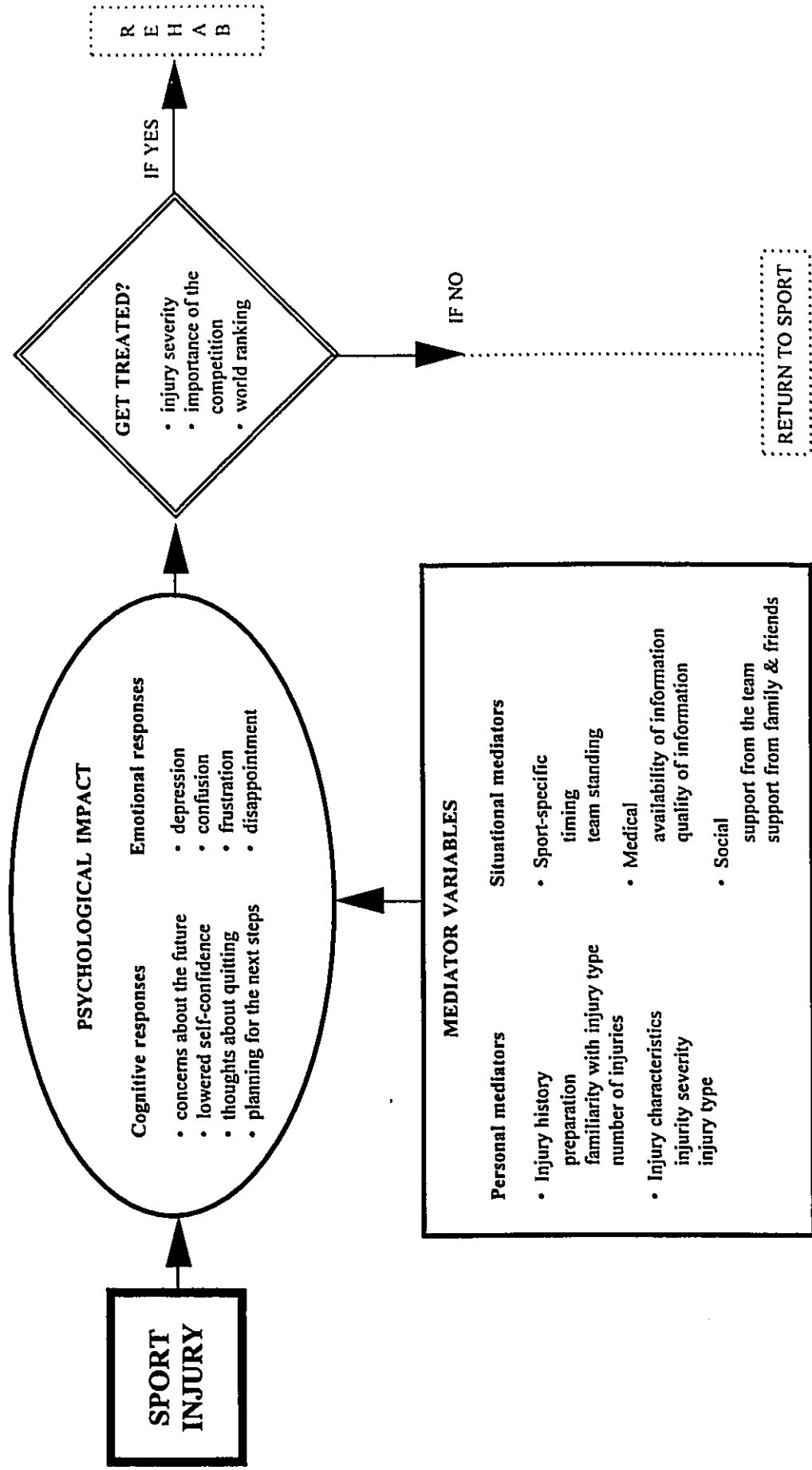


Figure.16. Sport injury process model - Injury phase

their feelings about what lay ahead as a result of the injury? More importantly, however, was the question of whether it made sense to attempt separating the two phenomena since they were so closely related. In other words, were it not for the injury, the athletes would not have been undergoing treatment.

What the data indicated, in fact, was that sport injury was not an isolated incident *per se* but a phenomenon or a process, the impact of which was determined by past and future events and which fluctuated over time. Thus, while some athletes reported being able to take the injury in stride, others found it particularly difficult to deal with. The psychological impact of injury was classified as pertaining to either cognitive or emotional responses.

Cognitive Responses

Classified as cognitive responses were the athletes' thoughts and thought processes following the injury. Essentially, cognitive reactions centred on four themes: **concerns about the future, lowered self-confidence, thoughts about quitting, and planning for the next steps**. For example, in terms of immediate thoughts following the injury, one athlete described the following:

Well, you're lying on the snow and it hurts like you wouldn't believe and you're thinking 'What am I going to do?' And all the plans you have for the summer are just thrown out the window and you're wondering what's going to happen. Am I going to be able to ski again? What am I going to do all summer? (A8)

In contrast, another athlete who had already experienced a knee injury in the past, immediately focused on the next steps and was very anxious to get the treatment and recovery process under way.

Basically, your thoughts are, 'Oh well, there goes that season!', and you're already starting to think ahead to the operation, physio and rehabilitation following that. I didn't know what to do with myself in the meantime. (A4)

Emotional Responses

Classified as emotional responses were the athletes feelings about being injured. Injury represented an important obstacle to achieving the goals that the athletes had set for themselves. Indeed, being injured required putting one's dreams on hold and in the case of the athlete who sustained a career-ending injury, it meant abandoning life-long aspirations. As a result, the athletes showed a number of emotional responses to injury, which included **depression, confusion, frustration and disappointment**. The following athlete, for instance, mentioned the disappointment that came with the realization that having an illness entailed having to put skiing aside for an indefinite period.

It was hard to put skiing aside and say 'I'll come back to it' because since I was eight years old I've had this dream and I've just done everything I can to get there. And all of a sudden, I've got to put that aside. (A2)

Another athlete who had contracted an illness discussed how the reality of having to put one's dreams on hold was particularly difficult. In addition, the frustration experienced contributed to sleeplessness which only exacerbated the athlete's condition.

Bon les deux premières semaines là ç'a été très difficile, il y a des soirs où je ne dormais pas. En plus d'avoir la mono je ne dormais pas parce que j'étais tellement frustré, je veux dire ça faisait déjà trois ans que je m'entraînais, j'avais des buts d'aller aux Olympiques, puis l'année des Olympiques où je pouvais y qualifier, je tombe malade. Moralement le choc. C'a été très difficile pour moi moralement, psychologiquement aussi je pense. (A12)

Although the above quotes give somewhat of an indication of the athletes' responses to injury, the actual psychological impact of injury is best appreciated when considering the

interaction between mediator variables, the trials and tribulations of recovery, and the return to sport. This being said, it was clear that injury was an undesirable and unwelcome event. The discussion now turns to a consideration of the factors which influenced the athletes' response to injury.

Mediator Variables

The variables which mediated the athletes' responses to injury were classified as pertaining to either personal or situational factors. Personal mediators were individual factors which included the athletes' injury history and the characteristics of the injury. Situational mediators were external factors which influenced the athletes' response to injury. These variables were distinguished as being either sport-specific, medical or social.

Personal Mediator Variables

Injury History

Included in this category of personal mediator variables were characteristics which predisposed the athletes to respond to injury in a given manner. This predisposition centred on three themes: whether or not the athletes were prepared for the occurrence of injury, familiarity with the type of injury and the number of injuries already experienced.

Preparation: For some of the athletes, being involved in a high risk sport in which injuries were commonplace enabled them to expect and accept that they would eventually get injured. In other words, they acknowledged the risks associated with competing in their sport at the elite level and were, therefore, mentally prepared for the possibility of injury. As a result, these athletes seemed, to a certain extent, to be able to take injury in stride.

The first time it really didn't affect me that much. Seeing a lot of injuries, a lot of other athletes around getting injured, blowing knees is the most common one, I kind of thought that one day the dice would roll wrong for me and I would end up with one. I suppose I kind of expected it in a way. So when it did happen to me, I wasn't really devastated. (A4)

I think as a ski racer you expect to get injured once in a while. You hope that you won't but almost every skier suffers a knee injury. If they have a career that lasts five or six years, you'd expect something like that to happen. So, I looked at it as just it being my turn for something unfortunate to happen and I dealt with it the best I could, which was pretty good. (A3)

Because I'm in a high risk sport where injuries happen, I guess I'm ready for it, I expect it. So I just calmly go through the motions of rehabilitation and trying to come back to strength. And yeah, people around me, close people, they often say 'you're taking it so well, that's great. (A4)

Familiarity with injury type: The calm acceptance of the injury, however, depended on how much the athletes knew about injury since this knowledge or familiarity, whether acquired through personal experience or from other sources, i.e. teammates, provided the athletes with important information which enabled them to make certain assumptions concerning diagnosis and prognosis. For example, the following quote describes an athlete's on-site diagnosis of the injury and what it entailed.

Well, I knew immediately what I had done. You just know, you feel it, you hear it, the dreaded pop that you hear when you're tearing a ligament. I thought, oh well. Immediately I knew it would be a year before I would be back at any type of competitive level. I knew I'd be having an operation, going through physiotherapy, I'd be in the hospital. You know, all these things sort of pass through your head. (A5)

In contrast, the inexperienced skier who knew little about injuries found it difficult to deal with the uncertainty engendered by a lack of information. However, once equipped with the proper information, the athlete's concerns were allayed.

It was pretty hard to deal with... I didn't know the actual severity of it right at the beginning. I didn't know it was going to take six months for rehabilitation, I didn't know I had to get operated on because I didn't know that much about knee injuries. I was only a young ski racer at that time... But once I had talked to a bunch of different doctors that I knew and other racers and teammates who had similar injuries, I knew it was going to be that long. So then it was just a matter of getting better. (A3)

The above also demonstrates that knowledge was key to anticipating the future. This was an important issue for the athletes who found uncertainty about the future intolerable. Being goal-oriented and anxious to get back on track, the athletes needed information which would allow them to plan for their return to sport.

Number of injuries: The number of injuries an athlete had already suffered also had an influence on the response to injury. In fact, experience with injury posed an interesting paradox because, on the one hand, it equipped the athletes with important information and knowledge which allowed them to get through rehabilitation more efficiently. In other words, they were able to apply the lessons learned from previous recovery experiences to get the maximum out of their treatment plans and to minimize recovery time. However, despite its informational value, suffering another injury was clearly a taxing experience marked by frustration and disappointment. One athlete described how injuries shake up one's confidence and how it gets more and more difficult to get that back with each injury.

Well, it's amazing how resilient you are. One bad crash I think anyone can come back from quite easily. If you're a true athlete, one, I don't think is hard. Two, is a challenge. A third one is really challenging and a fourth one is almost impossible if it's a bad injury... the idea is that you've got to have confidence and it's got to be real confidence. So, when that's shaken up, it takes longer to get back. (A7)

Having already suffered an injury, this athlete found it difficult to face the prospect of recovery, particularly since the first recovery had been marked by complications and an unusually lengthy recovery period.

The second time I was injured, I was much more discouraged because I had only been back to competition for a short period and then this happened, and just the nature of the second injury. It happened without a horrendous mistake or a crash or anything, it just... I just blew my knee out and, you know, stayed on my feet...And I was like man this can just happen so fast, so easy, I just spent 24 months returning and had 1 year back in the saddle and I've already done it and I don't know if I'm prepared to go through all that work just to have it blown away again so quickly. (A1)

In relating the frustration of having suffered a series of injuries, another athlete offered a description of the bewilderment immediately following injury:

What was going through my mind was kind of like, oh god, no! Why did this happen? Why? I already had my slew of injuries. I didn't need any more!... What did I do wrong? Who's got a curse on me? What's going on? (A4)

This same athlete mentioned that, after a third injury, in addition to the frustration of being injured again, there was much speculation about retirement and this proved to be quite stressful because it was a possibility that the athlete was not ready to face.

Injury Characteristics

Included in this category of personal mediator variables were characteristics pertaining to the injury itself which influenced the athletes' response to injury. The two main themes discussed concerned injury type and severity.

Injury severity: The severity of the injury was an issue for athletes in terms of length of recovery and the possibility for full recovery. Thus, although a number of the injuries discussed in the interviews could be deemed serious, those which entailed a lengthy recovery or cases in

which the possibility of full recovery¹³ was questionable were the most troublesome. For example, both athletes who had illnesses indicated that apart from a severe lack of energy, they found it difficult to deal with the long and drawn out course of recovery which lasted close to two years. Another athlete related how sustaining a knee injury, which under normal circumstances would not have been considered especially traumatic, was extremely difficult to deal with because it ended the athlete's career in skiing. In response to whether the injury was life-threatening, the athlete had this to say:

Well, it depends on what is life-threatening. Is it life-threatening because you end your career where you spend 12 years getting better and being top in the world? Or life-threatening because you're going to die? I think if you're talking life-threatening and you're talking mental, psychologically, I think it can be a 10. Because it's the end of your career. (A10)

Interestingly, another athlete who had experienced a life-threatening injury (as confirmed by other members of the team) spoke very casually about it. In fact, when asked whether the rehabilitation involved (1 ½ year recovery period) was more of a challenge compared to the recovery associated with a previous injury (6 month recovery), the athlete responded:

I honestly don't think it was. I had to spend longer in the hospital, I spent three months in the hospital. And it was only more of a challenge in the hospital. Once I got out, I was just weak and it wasn't a matter of having to get the flexibility back in my knee and make sure the swelling was gone and everything like that and making sure that my knee was stable. It was just a matter of getting myself back into shape and that was hard too. (A3)

Considering that the athlete was still skiing competitively, trivializing the magnitude of this last injury may have served as a psychological coping mechanism which allowed the skier to

¹³ When the athletes spoke of full recovery, they referred to being able to ski at preinjury levels.

persist with the sport. In other words, engaging in an activity which could potentially end the athlete's life may have created a state of cognitive dissonance. Resolving this inner conflict required either terminating the activity or minimizing the significance of the risks. Since the athlete wanted to continue skiing, the severity of the injury was reframed to take on a lesser importance.

Another coping mechanism used when discussing difficult events or experiences involved intellectualizing in which disclosures centred on the mechanical aspects of an event but the emotional aspects were suppressed. A tendency to do so was most evident among current team members. Whereas, the former team members who were still skiing but not placing themselves in high risk situations, tended to be more explicit about the psychological impact of injury. Each one confirmed that injury was a difficult and upsetting occurrence and that rehabilitation was physically and psychologically taxing. It seemed that the time away from high level skiing had given them the opportunity to reflect on and fully explore and appreciate the significance of sport injury. Clearly, this was not an exercise that could be engaged in while still competing for it may have brought to surface fears and worries which could have placed the athletes in further danger or have forced them to withdraw from the sport.

Injury type: Injury type was looked at in terms of injuries common to skiing versus those which were not. Athletes who had common injuries appeared to have a better time adjusting to their circumstances for two inter-related reasons. Firstly, the most common injuries in skiing were knee injuries and the chances for recovery following knee surgery are very high. More importantly, the chances of returning to compete at an elite level are also very favorable. In addition, because knee injuries are common in skiing, the majority of skiers have had a knee

injury at one time or another. Thus, there was an abundance of examples to draw upon regarding information on rehabilitation time lines, chances for recovery and the possibility of success in sport following recovery.

Initially I didn't think it was that big a deal, it was like 'O.K., half the guys on the World Cup circuit have done this, they've had the operation and six months later you're skiing, you're training and next year you're back on the tour again, no problem.' (A1)

I just went through the motions and knew that many many other racers had gone through it also and had returned to ski racing and had been successful again. It didn't really get me down. I knew it would be a lot of extra work, it would be a while but that I'd be able to go back and do as well. (A4)

I knew I'd be 100% after the six months, after I'd gone through all the rehabilitation and that because I'd seen other people who were just as strong, they just have a couple of scars to show for it. (A3)

In contrast, the injuries and conditions which were not common to skiing engendered a lack of readily accessible information or common knowledge. Thus, there were a number of concerns regarding down time and the chances for recovery which preoccupied the athletes. Furthermore, as the following quote illustrates, this lack of knowledge led some athletes to make erroneous assumptions regarding recovery time.

The nerve damage, that was something new to me, I didn't know how long that would last or anything. I thought it would all recover fairly quickly. The knee injury, I knew I was out for a certain amount of time and I knew there was a precedent of how long it takes athletes, you know the whole process. This was a very different injury, not typical of skiing at all. So I really didn't realize at the time, the severity of it. (A5)

The key issue underlying injury characteristics concerned confidence in the ability to recover fully. Thus, although expectancy may have prepared the athletes for injury, the ability to cope well with the injury and remain motivated throughout recovery was more heavily

influenced by the belief that full recovery was a strong possibility. Indeed, this explained, in part, why injury was most traumatic for the athlete who had a career-ending injury. Unlike the athletes who knew that their pursuits had been only temporarily interrupted by injury, the athlete who could no longer ski had to deal with the loss of an athletic career, while trying to remain motivated during recovery. In addition to facing an uncertain future, this athlete no longer had the dream which was a driving force in previous recoveries.

Situational Mediator Variables

Sport-specific

Included in this category of situational mediator variables were characteristics pertaining to the environment in which the injury occurred which had an impact on the athletes' response to injury. The emphasis was on factors which were sport-related. The two main themes discussed concerned the time at which the injury occurred and the athlete's team-standing, i.e. up-and-comer versus marquee athlete¹⁴.

Timing: The time at which the injury occurred was considered from two perspectives: time of the season and time in the athlete's career. The ski season was divided into two parts: the training season and the competitive season and as one athlete indicated, getting injured at either of these times carried with it certain advantages and disadvantages. However, the quote clearly shows that injury, was an undesirable occurrence at any time.

Sometimes you say the worse time to get injured is right at the beginning of competition season because you've just lost the whole season. If you get injured at the end of the competition season, well you miss the entire summer of training

¹⁴ These are the terms the athletes used to distinguish between athletes who had been on the podium (marquee) versus those who had not yet proven themselves (up-and-comer).

and you return to skiing right when competition starts again. And you've had virtually no training and you go through a winter trying to compete without the training. And you're kind of floundering and that's difficult. But at least you got the entire season the year before. So it's a toss up. There's no good time. (A1)

With respect to the competitive season, a number of athletes pointed out that getting injured either at or leading up to the Olympics was difficult to deal with since the timing only served to heighten the impact of the injury.

Je voulais tout lâcher. Puis surtout que c'est important, c'était une année Olympique et pour moi c'était un but depuis longtemps. (A9)

The following day, all my teammates are going to be ski racing in the Olympics and I'm going to be watching them from a bed somewhere on the television. So you know, it was fairly dramatic because it happened there at the Olympics and there was so much joy and excitement around. And I was really on a negative trip because I wanted to be a part of it and I really couldn't. (A5)

Another athlete mentioned how sustaining an injury at the beginning of one's career was less threatening since there was still time to achieve one's goals.

So many people have gone through this, it's not that big a deal, especially at that time in my career when I had years to go yet after that. (A1)

However, considering that the above athlete was referring to a knee injury, it was most likely that the aloofness displayed was influenced by the high chances of full recovery rather than by the timing of the injury with respect to the athlete's career.

Team standing: Whether the skier was considered a marquee athlete or an up-and-comer also had an impact on the athlete's response to injury. For instance, suffering an injury early in one's career was especially problematic for the athlete who was under criteria, i.e. had to achieve a given result in order to secure a spot on the team. In addition to influencing the athlete's initial reaction to injury, being under criteria proved to be an added stressor during rehabilitation since

these athletes had a given amount of time in which they could recover and subsequently prove themselves. In fact, a former team member remarked that a lot of athletes did get cut because of their injuries. Therefore, just knowing that the possibility of being cut from the team existed created an additional concern.

Medical

This category refers to information pertaining to the athlete's condition. The influence of medical information on the athlete's response to injury centred on two themes: the availability of information and the quality of information received. Clearly, the diagnosis and prognosis received also had an impact on rehabilitation and the return to sport. However, since this information was received at the time of injury, it has been included in the injury phase. Medical information received at later stages is discussed in the appropriate sections.

Availability of information: As summarized in Table 2, there were a number of sources through which the athletes obtained medical information regarding their injuries or illnesses. Information about injury or illness was an influential factor in that the more informed the athletes were, the better able they were to anticipate and plan for the future.

Table 2

Sources of Information about Injury

Medical personnel	Athletes ^a	Self
Physician/Surgeon	Teammates	Personal experience
Physiotherapist	Former team members	Self-directed learning
Athletic trainer	Other skiers	
Chiropractor		
Nutritionist ^b		

^a Transmission of information was either direct or through observation or reputation

^b In the case of illness

For the athlete who had Chronic Fatigue Syndrome (CFS), obtaining information was very difficult because CFS was an illness which was not well understood at the time. The paucity of information regarding CFS made it very difficult for doctors to diagnose the athlete's condition. As a result of having an undiagnosed condition and without medical confirmation of symptoms, the athlete reasoned that the cause of the illness was psychological, i.e., a lack of discipline, and therefore self-prescribed a treatment or solution accordingly. Unfortunately, the athlete's resolve to work harder only exacerbated the illness.

I had chronique fatigue syndrome for the better half of two years, I guess. I tried to train and race with it through the season and I had to stop. I expected to come back because no one knew what I had, just that I was tired. Then the next summer I continued to try and train but, you know, I had no gains and I just kept regressing rather than progressing. The harder I worked, the worse I got. So it was a really tough time for me mentally because I just thought I was being a wimp, pretty much. (A2)

As the athlete explained the difficulty with not knowing what is wrong with you is not knowing if and when you will get better. Thus, the uncertainty that accompanied the undiagnosed condition was very trying for this athlete.

Quality of information: Related to the availability of information was the quality of information the athletes received, for this also determined how well they were able to anticipate and plan for recovery. Quality of information centred on whether the information was accurate, athlete-specific, and the manner in which it was delivered. For example, the following athlete discussed the frustration of not receiving accurate medical advice:

Well, it was really frustrating because, the doctors just said, 'take a couple of weeks off and you can jog during this time and in a couple of weeks you should be fine'. But, of course, that wasn't the case and three months later, they didn't have any answers for me. (A2)

The accuracy of the information received also had to do with whether it was athlete-specific or based on the general population. Athletes were more likely to adhere to medical recommendations and set realistic recovery goals if it was made clear to them that the prognosis was based on an athletic population.

If they said the general population comes back from this operation in seven months, then you're thinking, 'maybe I should be back in six months'. But if they say athletes come back from this in seven months, yeah, maybe you would give yourself a little more time. (A1)

As is suggested by the above quote, however, there is no guarantee that once given athlete-specific advice, the athletes would not try to push the limits. In fact, in addition to being a personal challenge, some athletes perceived rehabilitation as an opportunity to assert their physical superiority. For example, one athlete in particular who claimed to be a 'fast healer', tried to out do every time line that was recommended and on every occasion returned to the sport before being fully recovered.

In some cases, information was withheld from the athletes in an effort to protect them. The problem with this approach was that the athletes based their expectations for recovery on this incomplete information and, as a result, encountered a series of disappointments when healing was not on schedule. As one athlete indicated, it was important for the skiers to know what they were up against so that they could set realistic recovery goals for themselves. Without it, the athletes just tried to keep up with every one else's recovery time, especially when they didn't have experience with injury. As was the case with the following athlete, poor quality of information led to a premature return to sport and subsequent complications.

You've got to know what you're up against. Because I was thinking 'hey, this is the same thing that 10 other guys have gone through in the last couple of years, I'm going to be back in six months'. Then when you're at six months, you're starting to ski and going 'this is not how I should be skiing'. And at eight months you're pushing it because that's the time lines you're supposed to be on. And I think that's what I did. I pushed it because I was trying to keep up with the general time lines. If it had been explained to me, 'this is a little different, this is a little more serious', then I would have backed off and I might not have tried to be back to competition within a year. I might have tried to be back to competition after 14 or 16 months or, you know, spread it out a little longer and then I might have been on that schedule. But I tried to push it and that overdid it and together that just knocked me back. (A1)

A number of athletes indicated that they preferred that doctors be straightforward in giving a diagnosis but that this information be presented in a positive light and in a non-absolutistic manner. In other words, the athletes wanted to be informed of the severity of the injury while at the same time being offered some glimmer of hope.

Should he (doctor) have told me in the beginning that 'I don't think you're ever going to ski again'? Well considering that he was wrong, you know, it wouldn't have been good for him to tell me that at the time, no. But also I think telling somebody honestly what's up, what's the prognosis and say 'look this is severe, I think there's a chance you might...' They've got to tone it down, they can't make absolutes because absolutes don't exist. (A1)

Sometimes, however, when the prognosis was unfavorable, athletes believed what they wanted to no matter what the doctors told them. It was clear that the athletes saw themselves as exceptional individuals, even in comparison to other skiers. Thus, despite the case histories of other racers with similar injuries, these skiers believed they were going to be the ones to break the mold.

(The doctor) said, 'you know, it's a big one and I wouldn't recommend skiing again, it's highly unlikely, this cartilage thing is a big deal and you'll never be a runner again...', and I'm just thinking I hope I can prove him wrong. I'm thinking that's the worst case scenario so who knows, I'm going to be a different case. (A8)

In fact, this was the line of thinking echoed in the athletes' responses concerning the attitude required to be a winner or a champion in skiing. In striving to be the best, they were trying to set themselves apart from the rest. Thus, considering that this was the mind-set that had taken the athletes to an elite level in their sport, it was understandable that they adopted the same perspective regarding injury. As will be seen later when discussing transitions between injury, recovery and the return to sport, some athletes carried this reasoning to the extreme. In other words, the belief in their own invincibility led them to not seek medical treatment or to ignore medical recommendations and to return to sport prematurely. In all cases, poor performance or further injury ensued.

Social

Support from the team¹⁵: From a practical point of view, the support needed at this stage centred on assistance with logistical matters such as packing one's belongings, booking a flight, getting to the airport and arranging for treatment at home. Athletes were appreciative of the team's efforts during these times.

... it's sort of like tradition when somebody gets hurt, they pack your bags. You know I'm hurt and they bring food to my room and they cheer me up. They stuck with me and helped me to the airport until I was on my own. (A8)

When you're leaving, they're very supportive, they come and see you and console you. They're very supportive. (A5)

The nice thing is that when you're injured, you don't want to have to be the one to call the surgeon and say I think 'I blew my knee out, can I come in and get it operated on?' So the team takes care of that or the coaches call the office and the office sets it up or the coaches call directly... So yeah, that's all taken care of, the

¹⁵ 'Team' is refers to the collectivity of teammates, coaches and the team management or CAST.

ticket is changed, you're taken to the airport and flown home. (A4)

Regarding assistance with obtaining medical treatment, the athletes, for the most part, felt that there was great assistance from CAST. Difficulties were encountered, however, with respect to arranging for physiotherapy. Some felt that assistance from the team management in this regard was insufficient while others felt that it was their own responsibility and, therefore, did not mind making their own arrangements. It must be pointed out, however, that this latter group did not need assistance from CAST because, through their contacts outside the team, they discovered who the best surgeons were and where the best treatment could be found. With respect to the athletes who did and did not receive assistance with rehabilitation arrangements, the discriminating factor seemed to be the athlete's team standing. In other words, the marquee athletes who had already proven themselves felt they were well taken care of, while the up and comers felt they were left to their own devices to get the best treatment.

The athletes who sought medical treatment independently felt that CAST was not always supportive of their medical choices. For example, the athlete with CFS who turned to non-traditional methods of healing, i.e. naturopathic medicine, was discouraged from seeing what the team doctors referred to as "wacked out" doctors even though the team doctors were unable to offer any help. Another athlete met with disapproval as a result of choosing to have surgery in the U.S. rather than get treated by one of the team doctors in Canada.

One athlete discussed the difficulty encountered in trying to convince the team management that medical treatment was needed and how the failure to acknowledge this request led to a worsened condition.

Well, when I first injured my leg... The first camp we had physical testing and I went to the camp and I told them that my leg was bothering me. So I wanted to, you know, take it easy, like I didn't really want to do anything much so I could ski. And the physio guy said 'either you do dry land or you go home'. So, I thought, 'O.K., that's his job, he's the physio, so he must know.' So I did dry land and I couldn't ski. I got back (home) and I found out I had a hairline fracture in my shin. (A6)

It must be noted that this was an athlete whom CAST considered a "problem athlete". It was felt that this athlete had a less than favorable attitude and a poor work ethic. Unfortunately, this perception, which the athlete claimed was ill-founded, put the athlete at a particular disadvantage in the above instance. However, once the problem was acknowledged, efforts were made by the team management to have the athlete treated as quickly as possible.

In terms of emotional support received immediately following the injury, coaches and teammates usually made an effort to offer words of encouragement and to try to comfort the injured athlete. When asked whether this was helpful, one athlete stated the following:

Yes and no. I try and turn it around to make it helpful for them in some way. I don't want to be dragging them down. You know, that's the last thing I want to do. (A4)

It is interesting how when discussing their reactions to sport injury, most of the athletes tried to pass it off as being "no big deal" or par for the course. However, the concern for teammates expressed above suggested that injury was indeed more upsetting than athletes were willing to admit. This was most clearly evident in the athletes' ways of coping with the injuries of fellow skiers.

I was trying to, as a racer who was still healthy and able to race and compete, I just tried to shut that right out of my mind. I didn't want any.... I tried to not let it affect me at all. Tried to not even think about it. As harsh as that may seem, as callous as it is, it's kind of the way you have to be. (A4)

Well, for me, I would just put it aside. I wouldn't think about it because it was throwing my focus off. You don't want to think about injuries. (A10)

Support from family and friends: Since the time lapse between the occurrence of the injury and the beginning of rehabilitation was fairly short, the athletes usually referred to the social support received from family and friends during recovery. However, there was agreement among the athletes that the type of support needed right at the beginning was listening support. They expressed a need for unconditional support and space to work through their thoughts and feelings and adjust to the reality of the situation.

I think when things like that happen (injury), you have to work through it yourself because you're not sure. Even if you talk about it, you're not sure what you're talking about because it's all mixed feelings. You can't explain it to them because you're suffering. You can't explain what you're going through because you don't even know yourself. So I think it's important that they listen and support your feelings, not try to change them. (A10)

I think the people around me were very sympathetic to me considering that I wasn't the nicest person. They were very caring and thoughtful to my position and realized that this was a big issue for me to deal with. They kind of gave me my space to deal with that and didn't say 'hey, quit being a jerk' and, you know, 'forget it, it's too bad, get on with things'. They kind of gave me my space. (A1)

Decision to Get Treated

The transition between the occurrence of injury and rehabilitation was marked by a decision to seek treatment or to continue skiing injured. In other words, because the athletes got injured didn't necessarily mean that they automatically sought treatment. Indeed, the decision to get treatment was influenced by a combination of three factors: **the severity of the injury**, **the importance of the competition**, and **world ranking**. Basically, severity had to do with whether or not the athlete could stand up and put on a pair of skis and the importance of the competition

was determined by whether it was a qualifying race for the Olympics or an actual Olympic event. World ranking had to do with the athletes' standing compared to other racers in the same discipline and was taken as an index of the chances of winning the competition. This combination of factors proved to be an issue at two crucial periods in the injury process: when deciding on whether or not to have an injury treated and when deciding upon the return to sport following rehabilitation. The latter point is discussed in a later section.

Throughout the interviews, it was evident that some athletes had a difficult time accepting that their bodies, which they referred to as physical machines, were not working. With their physical prowess called into question and their Olympic dreams on the line, the athletes were not always able to make rational decisions concerning their health and well-being. Three athletes interviewed faced the decision of racing in an important event with an injury. Each of these athletes decided to take the risk and in every case, the athlete had a poor performance or was reinjured. In fact, skiing injured contributed to the demise of the following athlete's ski career.

My last injury, I was at the top form of my career, I was ranked top 10 in the world. I was the number one Canadian coming into the Olympics. I tore my anterior cruciate in my right knee. That threw me off two days before the season started. So we went ahead and I went back on my skis without getting the anterior cruciate repaired. So we built the muscles, the knee was stable, we put a brace on and I went to the Olympics. Two days before the Olympics, we had a problem on the course and I caught my pole in a gate and I fell and I destroyed... That destroyed my career two days before the Olympics and my teammate won the gold! (A10)

The above quote highlights how being in serious contention for the gold medal was too great a temptation for this athlete to resist. What is interesting is that this athlete acknowledged that a racer had to be "100%" to go down a hill at 130km per hour let alone win a race.

However, when faced with the decision of skiing injured, the athlete succumbed to the delusion of winning being a possibility when injured and not in top form. Another interesting aspect of the above is that the risk-taking behavior was supported by the team or at least not discouraged since the athlete was permitted to race while injured. The same was true of another athlete who was allowed to ski two weeks following a concussion and broken rib while still visibly suffering symptoms created by the condition. Clearly, there was some concern on behalf of the officials, otherwise brain scans would not have been warranted.

Well, for the Olympics, I basically took the bandage off and raced with a broken rib. Before I could race the Olympics I had to do an EEG and a brain scan and all that other stuff. And every morning I would wake up... my morning run would be walking over to the breakfast place, having breakfast, walking back. And I'd be sweating by this time cause after a concussion, you tend to do that a lot, and then I'd ski a lit bit, do the run, warm up, and then go back to bed. The first run down the course, I fell. I didn't get hurt but my coach was there in about 30 seconds to take me away. Anyways, so I ran the next day again. As far as it goes, there's that determination in me. You're an athlete, things happen, but hey, you know your limitations and we all do it, play the odds. Sometimes you go for it and sometimes you know the harder you push, the more likely it is that you're going to fall. If you want to win, you've got to take chances. (A7)

As can be seen from the above quote, skiing injured was justified as another risk in a high risk sport. Furthermore, it was valued as a display of bravado and determination. Interestingly, however, persistence, in this regard, did not pay off for any of these athletes.

While the above athletes acknowledged that skiing injured contributed to poor performance or further injury, the following athlete felt they were unrelated. In fact, the athlete attributed the fall to a mistake but failed to consider why the mistake was made. For instance, it is possible that the athlete was distracted by concerns about the injured knee and concentration, therefore, was compromised.

I tore my anterior cruciate ligament in (year). And I tore it three weeks before the Olympics. So I had it scoped and I skied the Olympics with it torn with a brace on. Everything was going great during training, and I ended up falling in the race again, not because of my knee just because of a mistake. (A3)

The decision to seek treatment also came into question when experiencing symptoms which required medical attention and, again, timing was an issue. Fearing that the problem would require a significant absence from skiing and not wanting to lose valuable training time, the following athlete chose to self-prescribe a treatment and continue racing. Not heeding the signs resulted in further injury.

During the summer I developed a bit of a click in the cartilage. I guess I had a bit of a tear that I really didn't want to have scoped or touched at the time because I thought it would mean at least ten days or two weeks time off before I could be back on it and back in training. I was in final preparation for the (Olympic) season and I didn't want to take that time off. I thought with lots of physio and icing and anti-inflammatories, I'd be able to keep it under control. In the middle (of a race), it was going pretty good, as is always the case, having the best runs and at the very last turn and jump, I slightly miscalculated my take-off point and I landed right on the slip-skirting (net). As it turned out, I had a second degree tear of the medial ligament on the left knee. (A4)

Sometimes, however, regardless of the importance of the competition, the decision to ski injured seemed to be a matter of the athlete's approach to life and sport.

Well, for me it was really radical because I had a radical way of life. 'This is it and this is what I've got to do and let's do it now because if I start tomorrow, it's too late.' So when I was injured, I would try everything to ski still. That was my goal, it was to win. (A10)

For the athletes who had illnesses, the decision to seek treatment was a question of recognizing and acknowledging the symptoms and realizing that perseverance, in the context of training and skiing, was counterproductive. The following athlete who came to terms with the illness and elected to take a year long absence from skiing and to attend university described how

the decision was made:

I sat down with a piece of paper and pencil and wrote the pros and cons to both, keeping with the ski team or going to school. And I knew that with the way I was feeling, there was no way that... You know when you're injured and you're not sure how long it's going to take until you're better, it's kind of like beating your head against the wall trying to just keep training or whatever. You have to be able to step back and look at it. And going to school was a win-win situation for me because I could control the pace and meanwhile I was getting an education. (A2)

In summary, it was apparent that if there was an opportunity to ski injured, the athletes had difficulty passing it up, particularly if a chance of skiing in the Olympics was at stake.

Although they realized that the chances of doing well were very slim and the possibility of further injury was high, the athletes felt they had to take the risk. They had to give it a try and know if they could do it because not knowing was intolerable. It seemed that the risk-taking behavior which contributed to the athletes' success on the hill was transferred to the medical setting. This coupled with a focus on perceived short-term goals rather than long-term consequences led some athletes to gamble with their health.

Rehabilitation Phase

As mentioned earlier, the time lapse between the occurrence of injury and the rehabilitation phase was usually very short, with some athletes having surgery within one week of their injuries and beginning rehabilitation shortly thereafter. With respect to illnesses, however, the time lapse was longer because unlike the acute nature of an injury, the symptoms associated with the illnesses persisted for some time before it was recognized that the athletes had an illness. In the case of one athlete, for example, CFS went undiagnosed for close to one year.

The discussion of the rehabilitation phase has been organized to demonstrate the effects

of various factors as contributing to a cyclical process which constantly readjusted itself until the athlete was fully recovered and/or returned to skiing (see Figure 17). In keeping with the stress and coping theme on which the study was based, contributing factors were separated according to whether they acted as stressors or coping resources during the rehabilitation phase. The cumulative effects of the stressors and coping resources determined the athletes' perceptions of the stressfulness of the situation which is represented by the cognitive appraisal component. Based on this assessment, the athletes adopted a number of cognitive and behavioral strategies in an attempt to deal with and overcome the stresses of rehabilitation.

The outcome of the athletes' coping strategies was evaluated in terms of progress in rehabilitation and were adjusted accordingly. This process is represented by a feedback loop between these two components. It is important to note that because the rehabilitation phase was dynamic and marked by several changes over time, the presence and significance of the stressors, coping resources, and coping strategies listed varied throughout process. Thus, in addition to information regarding the athletes' progress, the coping strategies were constantly being influenced by new stressors or resources which presented themselves at given times.

Finally, when the athletes approached full recovery, a decision was made regarding whether further rehabilitation was necessary or whether they could return to their sport. Each of the components is discussed separately.

Stressors

Classified as stressors were those factors which contributed to the difficulty of dealing with injury and rehabilitation. They were characteristics of the situation which posed demands on the athletes' coping resources, thereby influencing the athletes' coping ability. During the

REHABILITATION PHASE

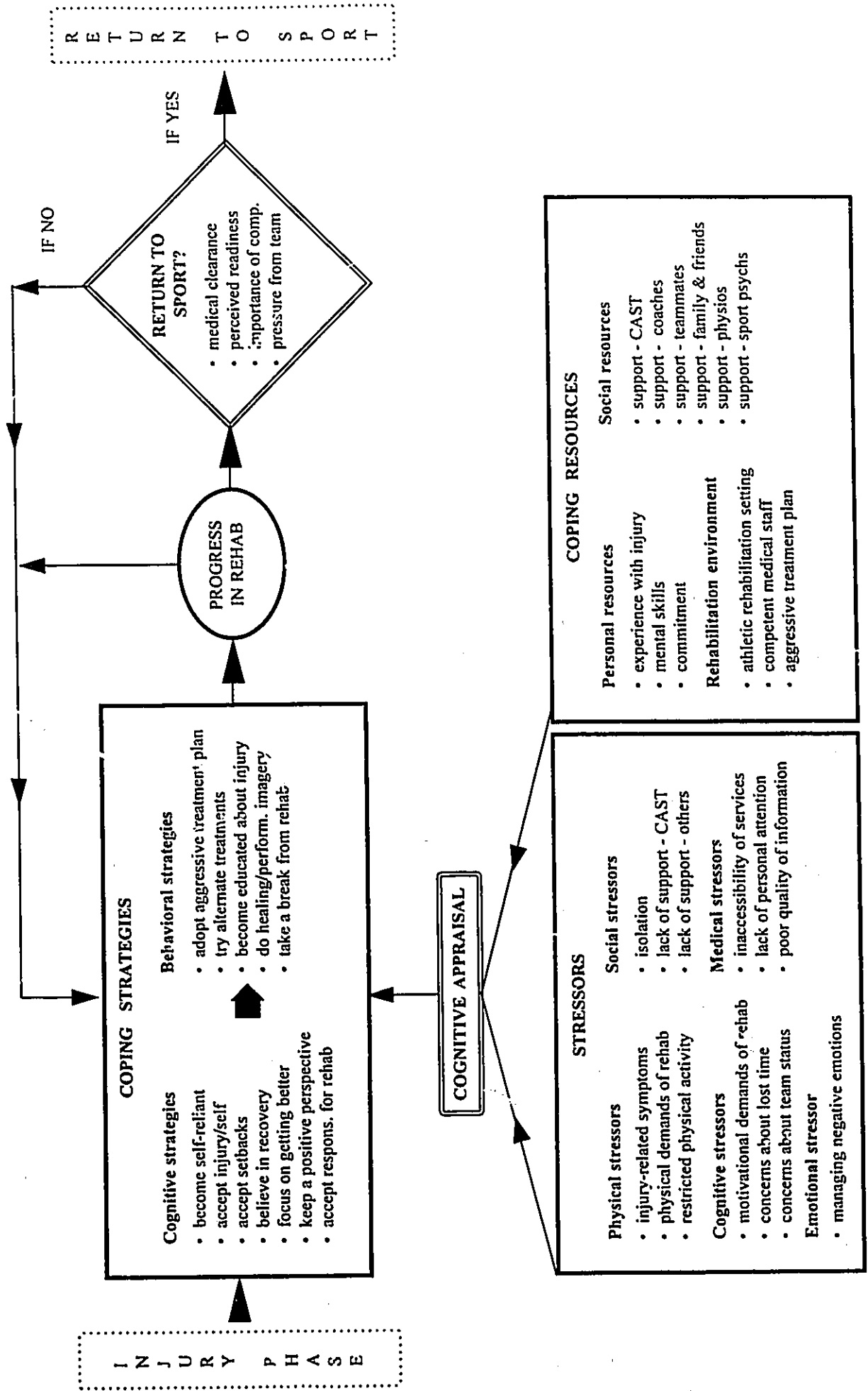


Figure 17. Sport injury process model - Rehabilitation phase

rehabilitation phase, the athletes faced a wide range of stressors which have been organized according to whether they were physical, emotional, cognitive, social or medically-related factors. While some of these factors were major hassles and others minor annoyances, it was the cumulative effect of all the stressors which determined the amount of strain engendered by the athlete's circumstances.

Physical Stressors

Injury-related symptoms

Aside from the obvious physical pain associated with the assaults endured by their bodies, some athletes mentioned fatigue, sleeplessness and difficulty concentrating as concomitant symptoms. When asked to identify the most difficult aspect of injury, one athlete offered the following:

You wake up in the middle of the night and your knee is throbbing and you can't get back to sleep and you have to get up and take some pain killers. And not being able to go out and do what you are accustomed to do normally. I think that was the hardest thing. But it wasn't really a big deal. (A3)

Physical demands of rehabilitation

It was also evident that attempts at restrengthening the injured body parts were physically challenging and marked by a high degree of pain and discomfort. However, the athletes appeared to be quite tolerant of the physical demands of rehabilitation. The athletes were very outcome-oriented and focused more on getting the job done than on the actual discomfort associated with rehabilitation. They had a desire to recover as quickly as possible and were willing to do whatever was necessary to achieve that goal. Nonetheless, it must be acknowledged that although the athletes may have been more willing to put up with pain, they weren't immune to it.

Thus, when pain was severe, their rehabilitation efforts were hampered and this obstacle proved frustrating. The following athlete described the physical experience of rehabilitation:

You know, it's like going to the dentist almost. You don't want to do it, you know it's gonna hurt, you hate that drilling sound, you hate that feeling of hurt, working on that one point of your knee and rubbing it until it goes numb. Although it's for your benefit, it's going to make you heal quicker, you hate it at the time. (A4)

Restricted physical activity

For some athletes, more stressful than the pain was the limited physical activity associated with their injuries. As active individuals, the athletes were accustomed to engaging in a number of sport activities during the off-season. The limitations posed on these activities by their injuries left them feeling restless and bored as they could not enjoy their free time as they wished. However, as the following athlete pointed out it was more of a nuisance than a major stressor.

Well, I was a little frustrated because usually in the summer I like to do all kinds of sports, play golf and go water-skiing. And I couldn't necessarily do that right at the beginning of the summer and that was a little bit frustrating. But I just kept occupied with doing other things and concentrating on getting strong again. (A3)

For the athletes with illnesses, the inactivity was further exacerbated by the lack of energy caused by fatigue and sleeplessness.

Je ne pouvais pas faire grande chose premièrement. Je ne pouvais pas bouger. Je restais chez nous puis j'ai été quatre mois absolument à rien faire, pas bouger dans la maison. C'était repos totale. Couché dans le lit, pas faire grande chose. Je prenais ma douche le matin et puis j'étais épuisé et j'allais me recoucher. C'était vraiment... C'était une grosse mono que j'avais fait. Ce qui était frustrant c'est que moi je suis un gars actif, j'aime bouger, j'aime faire du sport. Mais j'étais obligé de rester au lit pendant deux, trois mois. Ca fait que c'était dur. (A9)

Emotional Stressors

Managing negative emotions

As mentioned in the discussion of the injury phase, emotional responses to injury ranged from depression to disappointment. These negative emotions were carried into the rehabilitation phase and posed a strain on the athletes as they attempted to cope with their negative emotions and some athletes were more successful than others in managing their feelings. The following athlete discussed how being depressed affected motivational efforts during rehabilitation.

You get frustrated, you know. Like last year I had the best year of my life skiing-wise and then this happens. So you kind of get frustrated thinking, 'Well I did that good last year, imagine what I could have done this year', type of thing. So you know, you start thinking, yeah you have to do all these exercises, you know, that you just don't want to do. You just think, 'Well, I shouldn't have to do this'. But it's tough to get to doing them. But then again, you have to do them if you want to get better. (A6)

It is interesting to note that although fully aware that rehabilitation was the key to recovery, the athlete couldn't seem to get motivated because a lot of energy was spent on ruminating on the injustice of the situation. This highlights the importance of focusing energies on the future rather than the past as a motivational strategy (this will be discussed further under coping strategies). Indeed, most of the athletes were particularly adept at doing so and it seemed to be a skill that they had learned through their skiing experience, i.e. forgetting a bad race and focusing on the next one.

Focusing on the future, however, was difficult when it was marked by a high degree of uncertainty as in the case of the athlete who sustained a career-ending injury. In addition to the physical pain of injury, this athlete struggled with the emotional pain associated with the realization that the career in skiing was over:

There was pain because I had the surgery, pain because I knew my career was over. Desperately wondering what was going to happen. I knew I was going to be O.K. but that I was going to have to cut all the sports that I love doing. First of all, my career was over. All the sports I love doing like running, racquetball, tennis. I knew I had an injury for life. It was probably the moment I suffered the most in my life, in both ways, mentally and physically. Mentally I knew everything was over. It was pain all over. I suffered but the people around me also suffered. (A10)

As the above suggests, negative emotions can lead to strained relationships between athletes and potential support providers. Indeed, the disposition of the following athlete also contributed to several disagreements with medical personnel.

When I talked to the people I was close to then, I was very... like I was not a nice person to be around. I didn't realize to what extent but when I talk to them now, I realize how difficult it was for them to be around me at that time because I guess I just wasn't easy to get along with. Yeah, I'd probably be moody and was just not happy a lot of the time. I would kind of go about my thing, doing whatever I had to do but I wouldn't be doing it with a smile most of the time. I was kind of frustrated. I sort of got into arguments with my doctor and stuff. (A1)

The above athlete was referring to an undiagnosed condition which had developed following recovery from knee surgery. The athlete was coping well until complications in recovery arose, after which significant changes in mood occurred and the athlete's coping ability diminished. It seemed that the athlete was prepared to deal with injury but not with the complications which arose.

Cognitive Stressors

Motivational demands of rehabilitation

Coupled with physical demands were the motivational demands of rehabilitation. There was some discussion about how staying motivated and maintaining a high level of intensity when doing their rehabilitatoin exercises was difficult, especially when progress was slow.

Once I started physio, the novelty wore off real quick because it's just like your end goal seems so far away. I was in physio five or six days a week and you get in there and you're psyched but you just go flat so fast. It's so hard to make a gain at that level. You're just doing little things that you can't see any benefit from. It's really discouraging. That really was tough, I started in (the summer) and it was really hard to do physio and to do a quality job and to stay focused every day. (A8)

Concerns about lost time

During their down time, the athletes were particularly concerned about about missing valuable training opportunities and important competitions, and how this would affect their standing. In other words, the athletes were worried about how far they would be set back in their ski careers as a result of their injuries.

I haven't really been able to do anything big for a month so I'm in the ski season now, I've missed all summer... I'm in the ski season and don't have the strength I should have, I don't have the skiing that I wanted to get throughout the summer. So, I'm way behind schedule. I going to miss the first couple of World Cups, I'm not going to be able to do what I wanted to do this year. (A6)

There's always a question of doubt in your mind about whether or not you're going to be able to compete at the level you were before. When you miss a year of skiing, you think that you're going to fall behind because the people on your team have been training for a year and they would have learned so much more. (A3)

Concerns about team status

The possibility of being dropped from the team while injured came up a few times in the interviews and it was confirmed that some athletes had, in fact, been let go while still injured or hadn't been granted a sufficient amount of time to recover and obtain good results. This became a real concern for some of the up-and-coming athletes who had not yet proven themselves or who were under criteria (i.e. had to achieve a certain standing in a given amount of time). Indeed, there seemed to be a pervasive perception that a double-standard existed regarding how much

time recovering athletes were given to obtain satisfactory results, with marquee athletes, i.e. proven winners, being allowed a longer grace period. This was confirmed by both marquee and up-and-coming athletes.

Social Stressors

Isolation

Some of the athletes spoke of the loneliness and isolation associated with injury. Sent home to get treated and to recover, the athletes found themselves removed from their team and their sport. The sense of isolation was further heightened when the athletes were no longer going to physiotherapy clinics and doing their rehabilitation exercises at home.

A month and a half, maybe two months after the operation, I barely went to physio at all, I really didn't need it much. There wasn't a whole lot of need to go to physio all the time. In that time I really felt like I was pretty much on my own.
(A4)

Furthermore, although they were at home, they were limited in the number of activities they could engage in with friends. For example, as a result of the severe lack of energy and difficulty concentrating typical of mononucleosis, the athlete who had this condition was bed-ridden for three months and could not enjoy the company of friends during this time. The athlete with the career-ending injury summarized the feelings of loneliness most aptly:

You and your injury, there's nothing else! (A10)

Lack of support from CAST

While there was agreement that the team management was efficient in getting injured athletes to a doctor, some athletes felt that there wasn't enough assistance from CAST with respect to arranging for physiotherapy. When inquiring whether CAST had a referral network or

national listing of physiotherapy clinics, some athletes confirmed that one existed while others mentioned that if one existed, they weren't made aware of it. One athlete remarked that the referral system was sufficient as long as the athlete was progressing smoothly. However, when complications arose and the athlete needed special attention, CAST was not able to provide references beyond the traditional physiotherapy that had already been recommended. For instance, in looking for ways to deal with the complications encountered in recovery, one athlete eventually discovered the benefits of massage therapy and resented the fact that the team management had not included massage therapists in their referral network.

Some athletes mentioned that there wasn't any follow-up contact from CAST throughout the recovery period to ensure that they were receiving adequate care. This lack of interest left these athletes with the impression that the team management only cared about them when they were healthy and performing.

I felt like we were, I was talking to other athletes also, that's why I say we, we felt like we were left on our own to do the best we could to come back. You know, 'When you feel ready to ski, then we'll assess you and see if you qualify for the team again'. You think of other professional teams where their star athlete gets injured, he's sent to a specific rehabilitation center where he gets almost 24 hour attention and everything he needs to try to get him back to the best shape possible so he can get racing again. But there was none of that really. When I look at it from a racer's point of view who wanted to be the best in the world, I thought that I might have more support from the organization I raced for. (A4)

Another athlete was dropped from the team while injured and went through an appeal process to try to get back onto the team. This athlete mentioned that there were three other athletes who had gone through or were going through a similar 'production' with CAST. The athlete described the lack of support as being a huge road block to recovery.

I got a phone call and they (team) said 'we don't have any money and we don't want you back on the team next year'. So I had met the qualifications for the team and had torn my knee while competing. I was really shocked and bummed. And here you are on crutches and smashed up and for me it was really hard... You know, it's hard and during your rehab, it takes a big whack out of your confidence, your feeling about your self-worth. (A8)

As a result of being dropped from the ski team, the athlete encountered financial woes which only compounded the stressfulness of the situation.

Everything that could go wrong did. Being injured, cut off the team, losing my funding, can't work. Because I lost my funding, I couldn't get tuition grants to go to university. Rights, they're perks, but rights that you've earned are just pulled away. I mean you're racing for your country, for yourself and your country. You're a carded athlete and you get hurt because you're on the ski team I lost my carding that I had qualified for and there I am in physio six days a week and hobbling around and I can't get my funding anymore. (A8)

It was acknowledged that financial constraints were an influential factor in terms of whether CAST could or could not carry an athlete. However, all things considered, the athlete's position on the team was the deciding factor.

It depends on who you are. If you're a marquee athlete and you've brought in the revenue, they're going to nurse you along and do everything they can. But obviously if you're an up and comer, a developing athlete, and they're investing in you, your value takes a big nose dive when you get hurt because you haven't proven yourself. It's pretty harsh because you're putting in the same risk and can get the same injury as the marquee athlete. (A8)

One of the former team members had the impression that younger athletes on the team who were injured were treated as "excess baggage". In reviewing the transcripts case by case, it was apparent that the athletes who had been supported were, indeed, the top athletes on the team.

Lack of support from others

In terms of the support they received while they were injured, most athletes were able to plug into a support system at home (as will be discussed with coping resources). However, for a

few, support was not always forthcoming. For example, the following athlete did not receive much understanding at home:

My dad, he didn't quite understand the fact that if I kept doing stuff, it (bone) would break. He thought I was kind of being a slacker and sitting around doing nothing. But my mum, my mum only knows what my dad tells her. So she thinks the same thing. But my girlfriend and all that, they've been supportive. She's been the one to get me to the gym, getting me to do stuff. That's pretty much it. (A6)

The athlete with CFS who was required to take a year off from skiing in order to recover mentioned how there was a pervasive attitude in the the world of skiing that to stop skiing for whatever reason implied that the athlete was not going to return. The athlete found that challenging this misperception required a lot of energy.

Well, there were a lot of people who immediately assumed that 'she's going to school, she's done with ski racing.' That's just sort of... it's just sort of pre-set that no one takes a year off of ski racing. You know, people just don't do that. People have this predetermined idea that once you stop, that's it, that's your ticket. Once you take a break, that's it. That's so untrue. And that was my biggest stumbling block, was having to explain to people. That was the biggest thing. (A2)

Medical Stressors

Inaccessibility of services

As mentioned earlier, because most of the athletes lived in remote areas, access to physiotherapy clinics was limited and, in some cases, required a substantial amount of travel. The clinics that were available were usually centers which catered to the general population. Thus, the physiotherapists had little, if any, experience with treating athletes. The treatment received in such environments, therefore, was often lax and the athletes ended up tailoring the rehabilitation program to suit their own needs.

They'd come in and give me one exercise to do a day. I knew that that wasn't enough so I'd do a little bit extra just because I knew what I was capable of doing. And I know that they deal with every day people or older people who may not be used to going to the gym every day. So you know, they were pretty slow with progress. (A3)

Obviously, self-prescribing a treatment regimen had the potential to be dangerous, particularly with athletes who favored risks over safety. Also, the absence of a challenging rehabilitation plan undermined the athletes' confidence in the treatment they were receiving. One athlete spoke about skiers who had relocated to have better access to medical services. The athlete's feeling was that this was not a favorable solution because it meant being without the support of family and friends during a difficult time. Furthermore, moving away from home entailed added financial burdens.

What a lot of guys do is they move from their town, whether it be Ferny, B.C., into Vancouver or Calgary, because there's a lot more support there. But that's tough too. Then you have to support yourself in an apartment. Forget it! (A7)

Lack of personal attention

One athlete mentioned being bothered by the lack of attention in busy physiotherapy clinics. It was felt that interactions were rushed and there wasn't much opportunity to discuss psychological issues since the dialogue was centered on the physical aspects of recovery.

You know, they have six patients per hour at their clinic and so they've got 10 minutes for you personally. You know, they put you on a machine and quickly tell you to do this exercise. One day they have to spend 20 minutes with you to show you a barrage of exercises and then the next time you come in it's just 'O.K. go do your exercises and come back. I'll get the ultrasound for you, I'll put the laser on you'. You know, quick stuff like that. (A1)

This athlete went on to discuss how the personal attention and the hands-on nature of massage therapy was much more beneficial to recovery. Whether this judgement was based

solely on the physical benefits was hard to judge but it is possible that satisfying the athlete's need for individualized attention contributed to the athlete's favorable perception of this treatment approach.

Poor quality of information

As with the injury phase, the quality of information received throughout the rehabilitation phase had an important impact on the athlete's goal-setting concerning physiotherapy and expectations with regards to progress and recovery time. One athlete discussed how receiving inaccurate or insufficient information was particularly frustrating. Unable to determine the athlete's condition, the medical team adopted somewhat of a hit and miss approach to diagnosing the problem and prescribing treatment regimens. As a result, the athlete questioned the competence of the treatment team and became very concerned about the chances of recovery. The uncertainty of diagnosis left the athlete feeling desperate, hoping for some bit of information to anchor hopes onto:

They weren't even sure. They wouldn't even diagnose it as tendinitis. They wouldn't give me any kind of diagnosis on it. And I was just like, 'What are we going to do? What's the next step?' They'd be, 'Well, maybe we can do a scope on it and we'll go in there and look'. So I'm hoping they're going to find something wrong when they do the orthoscope so that 'O.K., good there was something, we fixed it and there's a reason that things are going to improve again.' But there was never really anything too firm because they weren't sure either. (A1)

Poor quality of information was also an indirect stressor in that progress goals set on the basis of inaccurate information were likely to be unrealistically high. Failure to achieve these goals led some athletes to judge their efforts harshly. In other words, the lack of or poor quality of information received set them up for disappointments throughout the recovery process.

Coping Resources

Included in the category of coping resources were factors which served to counteract or buffer the effect of the stressors the athletes encountered throughout the rehabilitation phase, thereby enhancing the athletes' coping ability. The athletes benefitted from three classes of resources throughout their recovery: personal resources which included athlete characteristics or personality traits, social resources which consisted of assistance received from various members of the athletes' social support network, and environmental resources which had to do with the rehabilitation setting and the treatment received.

Personal Resources

Experience with injury

Having previously been through an injury was advantageous in that athletes were better prepared for the demands of rehabilitation and were more adept at distinguishing between harmful and benign pain. The following athlete describes the knowledge acquired through the experience of injury:

The experience of how to just go through each day of rehab, when pain is good and when pain is bad, recognizing that and understanding that you're going to have good days and bad days. And just accept that some days it's going to be sore and you shouldn't push through that and other days it's just a little thing that you can push through. (A1)

When asked whether experience with injury facilitated coping with subsequent injuries, the following responses were offered:

Dealing with it, yes. You know that you're going to get back within a certain time. You try to push the time sometimes, a little bit, you know, try to make it faster your recovery. But, yeah, I got to know myself much better every time. And every time I had a new surgery, I'd say, 'Well, this is maturity, it's character!' (A10)

I didn't make nearly as many mistakes with my first injury as I did with my second one! So the answer is probably no. But I learned a lot from the next ones. I went through four major injuries and kept coming back. (A7)

Inexperience, on the other hand, was a handicap in that it was difficult to gauge how much effort was required and to accurately assess progress. As one athlete explained, getting into the habit of going to physiotherapy and doing exercises on a regular basis took some time to acquire.

I've never been seriously injured so I've never been the guy going to physio all the time or doing rehab or anything. So when this happened, it took me a while to start getting into a routine of going to physio. Like I'd go this week and I'd go maybe some other time. But after a while you start thinking, 'Everytime I go to physio, it seems to feel better. So I guess it could be helping'. So you get into a routine of going. (08)

It was difficult to determine whether the athlete's lack of self-discipline was related to inexperience or immaturity. However, the athlete's response to the question of whether there was anything positive about injury suggested that the motivational difficulty encountered was most likely a combination of both factors.

Next time I'll know what you have to do to get through it. I think it's different for everybody. But I'll know what to do next time and it won't take me as long to recover. That's pretty much the only positive thing about it. (A6)

Mental Skills

The mental skills developed through skiing were considered coping resources in that they lay the foundation for several of the coping strategies the athletes used to deal with the stresses of injury and rehabilitation. Indeed, the athletes who coped more effectively with their circumstances were those who used a number of mental strategies in their sport, including performance imagery and cognitive restructuring. In discussing their approach to skiing, these

athletes confirmed that they didn't spend much time ruminating about poor performances. Rather, they tried to draw lessons from the experience and focused their energies on the next performance. It was clear that a positive outlook was an attitude that these athletes used to confront the numerous stressors encountered throughout rehabilitation.

I'm a pretty positive person. I see the good in everything. You've got to turn everything into good. Sometimes when bad things happen I just remember that in a month or two, I'll look back at the situation and laugh so that makes it a lot easier. (A2)

What really matters is what you want to do and how strong you feel about it. Like, for me, I'm really quite an optimist in a way. You know it's really taken a lot of wind out of my sails. Someone who was less positive would have a hard time maybe. It's hit me hard but I'm still afloat. You know someone else who's less positive might say, 'Screw it!' (A8)

It must be pointed out, however, that staying positive throughout the rehabilitation process was a challenge which like physiotherapy required a certain amount of discipline. For some athletes, the stressfulness of their circumstances taxed their ability to remain positive to the extent that a fair amount of energy was spent focusing on the negative aspects of their situations. Interestingly, one of the athletes who seemed to be 'stuck' in a negative mind-set was one who admitted struggling with mental skills on the hill.

Commitment

The degree of commitment to the sport and to getting better was a coping resource which saw the athletes through a number of difficulties. When asked if there were ever any doubts about whether all the work required to recover was worth it, one athlete responded:

No, never. It's always worth it. You're only an athlete for a short time in your life and being a skier especially. It can be a pretty short career but it's always worth it. (A3)

Social Resources

Support from CAST

Support from CAST was expressed in terms of ensuring the injured athletes were receiving proper medical care and were given the time needed to recover fully. The following athlete explained how the team's interest was appreciated:

When I was injured the first time and the team physio came to my town and made sure he talked to the physio that was taking care of me. That made me feel that I was important, you know. They paid this money for this guy to come to talk to my physio. Well then, I felt better, I felt that I was important. You're a piece of their team and you're important to the team. (A10)

As had been mentioned earlier when discussing lack of support from the team, the top-ranking athletes typically received more support. The following athlete felt well looked after and acknowledged that the support received from the ski team and coaches was influenced by team standing:

I think because I had a very successful season and was one of the top athletes on the team, the coaches really took a great interest in my injury. Probably more so than an athlete who was first-year, or rookie, or something like that. You know, they would want to know my progress, they would want to know how everything was, they wanted to make sure that I was getting the right treatment and that I was doing the proper physical training or treatments and things like that. So they took an interest because, you know, if your top athletes aren't performing at their peak level, I mean, the coach has a lot to lose, I think. I mean all the way down from the office, I think there was a great concern that my injuries were looked after properly, that I was going to be back at the level that I should be at as soon as possible. But compare that to some other athletes and they'll have a different story and I can see why. (A5)

The athletes with illnesses were both given as much time as needed to recover and were reassured that their team status was not in jeopardy. Given the lengthy recovery time associated with their conditions, position on the team was an important concern for these athletes.

However, support from the team allayed their worries.

Ils (l'équipe) m'ont dit que mon statut sur l'équipe était... que j'allais toujours avoir mon statut pour l'année prochaine et que je pouvais revenir avec eux dès que la maladie était partie. Donc, j'avais aucune raison à m'inquiéter. (A9)

I think the team was good in that... I felt very fortunate that they said 'O.K.. go ahead and take a year off and come back, you know, take a year sabbatical.' And the head coach at the time was very supportive of that. And yeah, I couldn't have done it without that. As long as I had that support from the team, that made it a lot easier for me. Yeah, definitely, that was important. (A2)

It is possible that the team management's lenience in the case of these athletes may have been influenced, in part, by the fact that these were unusual conditions and, therefore, a precedent with respect to recovery time had not been established. Whereas, in the case of knee injuries, for example, where athletes typically returned within six months time, there was less flexibility regarding the return to sport.

Another issue which came up with respect to team support concerned efforts to keep injured athletes involved with the team by inviting them to competitions. One athlete felt that there were more disadvantages than advantages to be gained from doing so and concluded that the team would be better advised to finance a trip to recover in the sun or invite injured athletes to a training camp where there would be more opportunities to interact with teammates than at race sites.

Why spend energy somewhere else when you need all your energy to get better? For me, it's setting back that person if you invite someone to a ceremony. You're going to have a good time for a day but then how much of a setback are you going to have afterwards? In alpine, they're (teammates) way too busy to stop and talk to you. You're in a cast at the bottom of the hill and they're going 130km. They hop off their skis and have some other training to do so you're always left alone. You're better off getting two tickets to Florida. Then I'll feel better and I'll feel good about going somewhere. If you're going to spend all that money, make sure you spend it right. (A10)

In fact, there were a few injured athletes present at the training camp where the interviews for this study were done. In addition to giving these athletes an opportunity to spend some time with their teammates, inviting these athletes to the camp sent out a message to the rest of the skiers that CAST was making an effort to keep injured athletes involved with the team.

Support from coaches

Contact with coaches during recovery was usually very limited and varied according to the relationship shared between the coaches and their athletes. Only a few athletes mentioned being dissatisfied with the amount of support received from their coaches. Coincidentally, these were cases in which the relationship between both parties was strained. For the most part, athletes were not dissatisfied with the infrequent contact because they didn't expect to hear from their coaches. There was agreement that the coach's job was to produce champions and not to look after injured athletes and that support from the coaches was most important when the athletes returned to skiing.

The coach is there to produce champions and at down moments, he cannot let the other 5 or 10 skiers down. He's there to make them perform. There's a champion every day. We can't let that coach stop performing and we can't ask him to take on the role of this person that has to listen to you and this person that has to kick you in the butt and pick you up. He's not the person to do that. I think he's there to produce champions. (A10)

What was interesting was that despite this disavowal of the need for the coach's support, the athletes were very glad to hear from their coaches during their time away from skiing and acknowledged how motivating and encouraging contact with them really was.

One coach, he'd call to check up and talk to me. He's a great guy, he's like a player's coach. He's a really nice guy and he cares about you. I mean they all do but he does a really good job of communicating it. He said, 'You know you've got a tough road ahead of you but good luck.' Just to talk to him was good. (10)

Furthermore, for two athletes who were considering quitting skiing, contact from their coaches during down time was instrumental in bringing them back to the sport. For example, the following athlete was depressed and doubted whether a successful return to competition would be possible. The athlete explained that because they shared a long-standing relationship, the coach knew exactly what to say and how to motivate the athlete.

C'est sûr que quand c'est arrivé j'ai été déçu, j'ai été... Ça été dur pour moi et j'ai pensé d'arrêter et retourner aux études et puis... Il me rappelait pour me dire, 'c'est pas grave, tu peux te reposer et revenir au mois de janvier, février puis tu fais juste skier'. C'était toujours rassurant, tu sais qu'il m'encourageait à continuer. Parce que j'avais le morale quand-même assez bas. Je voulais tout lâcher. Je lui disais, 'ah, j'ai plus le gout de continuer'. Il me remontait le morale et me disais 'non lâche pas. Tu va avoir le temps. T'est encore jeune. Tu va pouvoir continuer plus tard. T'as encore beaucoup d'années devant toi.' (A9)

After a series of injuries, another athlete had become involved in a project while away from skiing and had grown less committed to working hard to recover quickly. The athlete explained that, at first, hearing from the coach was a little awkward because the athlete felt pressured into reporting something favorable, i.e. working really hard in physiotherapy, because this is what they thought the coaches wanted to hear. However, the athlete recognized that this particular coach loved the sport and the athletes and was well-meaning and the contact was instrumental in rekindling the spark and motivating the athlete to return to skiing.

You know I thought it was really good of my coach to keep calling me like that to check up on me. It could very well be part of the reason why I did suddenly have the turn of heart and get so committed again to skiing and to get back in shape. Without him, I might have completely lost hope and faith in the team and said, 'to hell with them.' But having the coach keep calling and checking up kind of refreshed my.... brought back to mind, I guess, the thought of ski racing and what the other guys are doing, going to the ski camp. It just made me think a lot about what I was doing or going to be doing. It kept the spirit of the sport alive. (A4)

Contact with coaches was not always desired, however. As one athlete explained coaches represented performance and hearing from them only served to highlight the fact that the athlete was not performing.

The coaches represent performance. Coaches, for me, represented performance, good results, happiness, skiing... And I don't think that is the person I wished I could have talked to because now I was in a different level. I was injured, I was unperforming, I was everything that a coach, to me, was not representing. So I had to find myself in that. I had to find which person would be at that level. (A10)

For the above athlete, the question of contact seemed to be a matter of pride and an indication of the nature of the relationship shared with the coach. The relationship was performance based rather than personal. Therefore, the coach was a resource person only insofar as technically related issues were concerned and could not be of assistance with matters off the hill. However, despite this athlete's own experience, there was a feeling that coaches should maintain contact with their injured athletes and that losing touch could be detrimental to the relationship. The athlete cautioned, however, that the interest should be sincere and that forced contact was likely to have a negative impact.

To lose the touch with the athlete means that you lose the interest and confidence in the coach-athlete relationship. If the athlete is injured, then the interest in the partnership and the confidence is gone with it. So that's one of the main things that doesn't get the athlete back on their feet faster, if there is a good relationship, letting it down. If you've got a relationship, keep it alive. I think that's something that should be done and sometimes is not done. You know it's really, really important the meaning behind the contact, that's very important. Very, very important. (A10)

In terms of how keeping in touch with an injured athlete could benefit the coaches, it was felt that by knowing where the athletes "were at" mentally, coaches could better plan for the athletes' return to sport. In other words, the coaches could develop programs which would allow

returning athletes to integrate slowly with the rest of their teammates, to rebuild confidence and help overcome the fear of reinjury.

For the coach it's to know where the athlete is going and what their state of mind is at and to try to redirect them or pace them or push them. I think that's very important, to know where your athlete is standing. Injury-wise a broken bone takes six weeks to heal, that you know. But the state of mind, the fear... I think it really would kind of prepare the coach how to coach that athlete once they get back with the rest. I think that would be the big benefit of it. Because how many months it takes the machine, that you know. It's black and white. But mentally, I think, it would give them a better idea about where the athlete is at in their thinking and their rehabilitation. (A10)

Support from teammates

For the most part, injured athletes didn't expect to hear from their teammates since the team was often still on the competition circuit. Furthermore, since the athlete trained independantly except when at training camps, the athletes didn't expect support from their teammates away from the hill. However, this did not mean that contact with teammates was not beneficial. In fact, as these quotes illustrate, it was quite encouraging:

A couple of my teammates were tremendous, they just took real good care of me. You know they were just phoning a lot. (One in particular) I talked to him quite a lot. He was good, he really made me feel a lot better about myself. That meant a lot to me. (A8)

Just people coming in and giving me their support and telling me that they were behind me. Other athletes phoned me and told me about their situations that they had been in and how they got through it and got better. That seemed to help a lot. (A3)

It was also mentioned that former team members were also a source of social support and visits with them were very uplifting.

The athletes who did come see me were some retired athletes from the Vancouver area, they came in to see me. Two ex-team athletes came in to see me. So that was very encouraging. I thought that was great. (A5)

Support from family & friends

The majority of athletes had a very supportive home environment and a well-established social support network. As these athletes explained, the comfort and understanding of supportive friends made dealing with the stresses of injury and rehabilitation a lot easier.

I think when you get injured, you understand who your real friends are because they're the ones who will come visit you in the hospital and phone you all the time and make sure you're doing well. And I understand now that I have a lot of friends. But the people who you're generally close with, your family and everything, they're the ones who will be supporting you the most. That makes everything a lot easier. (A3)

It was hard to stay positive about coming back to skiing. You know, is it worth it? Is this treatment worth all of that? It was hard but I had friends at home who were supportive. (A8)

In terms of support needs during this time, it was mentioned that being surrounded by positive and optimistic people was crucial. Furthermore, it was mentioned that support providers should try to give the athletes "unconditional support". One athlete felt a balance of listening support and technical challenge was needed and that it was up to the athlete to choose what was needed on a given day. The athlete also made a point about the negative effects of support providers who are overbearing.

I think you just have to listen to the person. You know like lend an ear. You need someone that you can talk to. I think it's anyone that you want to pick. If you need somebody to listen to you, then you ask someone. If you need somebody to push you, it might be the same person or it might be somebody else. I think you need a balance of everything, that whatever you need that day, that you can pick out of those friends. But you need people to not come too close to you, that they want to help you too much. (A10)

The athlete who had the career-ending injury talked about how important it was to have in one's network people who could relate to one's situation. The athlete found that a career

transition was difficult for most people to understand unless they had experienced it. As a result, the athlete's usual support provider was not in a position to appreciate the circumstances and provide for the athlete's needs.

My partner in life did go through a lot too because this person had seen the best of me and was now seeing the worst of me. But my partner could not understand because this person thought I was tough, this person thought that here I was going 130km down a hill, the next day why was I not tough anymore? Why can you not take this injury like the rest of them and do the same with it? (A10)

Support from physiotherapists

All of the athletes spoke very favorably of their physiotherapists and found that they were usually very positive, friendly, and accomodating. Two athletes mentioned special relationships they shared with their physiotherapists and how they came to be very important sources of social support for these athletes during their recovery.

The person that I wanted to talk to most was the person that was going to get me better. And that was not so much the doctor because the job of the doctor was done. It was the person that was going to take me on and that was my physiotherapist. We had the best relationship ever. He knew what I was thinking, he knew what I was going through because he'd seen me recover but he knew this time I wasn't going to recover to my full potential. So he adjusted himself too and he was ready to take me on. He was a moral supporter, a helper, a psychologist. He was pretty much everything for me. (A10)

Support from sport psychologists

Talk of sport psychologists was very limited and centred more on learning visualization techniques such as healing imagery from them than on obtaining social support from them. One athlete, however, did talk about how sport psychologists can play an important role in helping athletes deal with the stresses of injury and rehabilitation and had the following experience to share:

I had quite a long talk with (sport psychologist) about how I was dealing with it. She also recommended to just think about skiing now and then when I had some free time to visualize skiing and think about the good parts of skiing, why I love it, what makes me keep going. If I want to come back what is it that drives me? And it brought all that stuff to mind. In talking to her, I kind of realized how much harder I should be training to come back to ski racing. (A4)

Rehabilitation Environment

Athletic rehabilitation setting

Aside from providing athlete-oriented treatment plans, sports medicine centres were an ideal setting because they provided an environment in which the skiers could interact with other injured athletes. Being with people they could identify with reduced the feelings of isolation. At the same time the athletes were able to support each other by sharing experiences and encouraging each other. Finally, the presence of other athletes was motivational in that it brought a spirit of competition to the rehabilitation setting.

I worked out of a sports clinic. I had to go in there every day and it was an athletic type of environment so there were a lot of other athletes there. So it made it easier to go in there every day. It makes it easier when you have somebody else to work out with or different athletes in a clinic that you see have been injured or have the same injury are progressing at the same rate that you are. (A3)

It was suggested that a multi-sport or university setting was the optimal rehabilitation environment.

I think a multi-sport centre is the best place because you can really share with the other athletes. I think it's sharing experiences at that point that you need more than an uplifting or a boost of confidence. You go through life, you need to share with other people. That's with injury as well, sharing and try to get tips from other athletes. I think sharing athlete to athlete is important. You need people that are the same. So if you train in a place where there's lots of different athletes and you all train for an injury, I think that would be a great place to be. It's the optimal place to be. You want to talk to different people, not the athletes that you're dealing with every day. You want to talk to other people. (A10)

Competent medical personnel

It was very important for the athletes to have confidence in the medical staff and to feel that they were getting the best treatment possible. Working with doctors and physiotherapists who were well-recognized in the ski industry increased the athletes' confidence in the treatment programs. In addition to medical expertise, the qualities the athletes appreciated in their doctors and physiotherapists included: professionalism, a positive attitude, friendliness, and assertiveness. They also appreciated physiotherapists who were very accommodating and went out of their way to help the athletes. One skier acknowledged that elite skiers were in a privileged position and were treated better than the average individual.

I know that if I want an appointment at a physiotherapy clinic or anything like that, I get the treatment I want immediately. They'll go out of their way to help me. So it always feels good. I know that I'm going to be looked after properly and I think the clinics and doctors are very supportive of things like this. So in that regards, I think, you know, we're in an enviable position. We get fantastic treatment. (A5)

Interestingly, another Olympic athlete who was flown to hospital in a doctor's private jet did not feel that being an elite athlete invited better treatment from medical staff.

Yeah, they were always great. I don't think just because I was an athlete I was looked after better than anybody else but they were always really friendly and professional and did a great job. They would always come in smiling, so it made things a lot easier. (A3)

Several athletes also mentioned that working with medical personnel who had an understanding of the athlete mentality was very helpful. It was encouraging for them to know that the doctors and physiotherapists shared in the athletes' goals of returning to competition as quickly as possible.

Once in a while you find somebody who's just phenomenal, that's really behind the athletes and says, 'Look, you're an athlete, your life depends on you getting back to competition, that this injury heals 100%'. And they're willing to dedicate more time and effort to you and you really appreciate that. (A1)

They're aware of sports in general. They're all the same, sports, you know, we're athletes. We want more. They understand that. We always want more, we want to go faster. We never want to go through the patterns that anybody else is going through. We're different. We think that our machine is different but we're not. The machine, our body is not different. No, they understood the mentality. That's very important, the sport mentality. That's very important. (A10)

Aggressive treatment plan

It was evident that the athletes were very driven individuals who did not want to be sitting around wasting time waiting for their bodies to heal. They wanted an aggressive treatment program and wanted to be working on it as soon as possible. The medical staff who understood the athlete mentality knew that the athletes were willing to do the work and tailored treatment plans accordingly.

I was operated on one day and the next day I was already doing physio for it, going in to the physio room at the hospital. They had to take my brace off and start stretching it already and that was just the beginning of a lot of hard work. It was just trying to stretch it to gain the mobility back and icing it every day and doing that sort of stuff. (A3)

The physiotherapist has worked with me enough and she knows that because I'm in great shape to begin with, I recover much more quickly. She knows to be a little more aggressive in rehabilitation. So she's very good that way. It's really the first month I guess that it's important and it's a month of pretty intense physio where it's three, four or five times a week. The two times I've been in for reconstruction of the knee, within a month and a half of the surgery, I'm able to walk without crutches and cycle on my own. (A4)

Coping Strategies

The strategies used to cope with the stresses of injury and rehabilitation have been separated into cognitive and behavioral strategies for the sake of simplicity. However, it must be

understood that one was the precursor to the other. Thus, the behavioral strategies emerged from the cognitive strategies and their success, therefore, depended on how well the athletes were able to cope at a cognitive level. Furthermore, the cognitive strategies employed varied as a function of the athletes' level of experience and success with the mental skills discussed earlier. Aside from doing healing and performance imagery, the athletes did not have a formal plan for dealing with injury on a psychological level. Nonetheless, there were a number of cognitive and behavioral strategies adopted in an effort to cope with injury and rehabilitation.

Cognitive strategies

Become self-reliant

One athlete spoke about how athletes had to be their own psychologists and that the first step involved sorting things out mentally and then experimenting with a number of techniques to find the most suitable one:

You're dealing with so many different things that you need to clear your mind first. Like I'm not talking so much about the psychologist because we're our own. You know, you create your own and you try different things and you know mental imagery is very important. So you build kind of on your own (strategies) as you're going along. Things work and you get a little tip from this and that and try it out. (A10)

Accept injury/self

Although all the athletes had to accept the fact that their goals had been interrupted, acceptance of one's circumstances seemed to be more of an issue for the athlete with CFS than the athletes who had injured themselves. This was understandable given that, in addition to physical pressures, the illness was caused in large part by a substantial amount of psychological stress. Whereas the majority of injuries discussed were attributable to accidents, CFS resulted

when the athlete succumbed to a large amount of psychological and physiological pressure. As the athlete explained, overcoming the illness involved accepting the illness and believing in oneself.

A large part of overcoming my illness was mental. I mean it was the whole thing pretty much. It's just accepting the fact that you have an illness but knowing that you'll overcome it and believing that. And knowing that in the past, I was a great athlete, and that's still there, that's still inside of me. There's so many different paths to take to success and most people think that you just keep climbing the ladder and you get there. But you have to go down and come back up and sometimes go off the beaten path too. And you just have to accept that. (A2)

Accept setbacks

Related to accepting the injury was acknowledging that there would be good days and bad days in rehabilitation and that setbacks or periods of little improvement were a necessary part of the process. The following athlete described how setbacks were dealt with.

Just remembering back to the times when I felt good and allowing myself to feel that way and not fighting it because that's just added pressure and stress. Just accepting the way you feel, that's part of healing because you don't always go up. (A2)

Believe in recovery

It was clear that belief in recovery was an important motivational factor for the athletes. This related to the issue of certainty about the future discussed earlier.

The one thing that keeps me motivated is the fact that a knee injury is repairable. Not to 100% but it can be very close. I'll be able to ski again, I'll be able to walk again, do anything I want pretty much. I'm thankful that it's not an injury that's career ending or life ending. I guess, I try and take it as lightly as possible. (A4)

Focus on getting better

The athletes didn't seem to spend a lot of time ruminating about the fact that they were injured. Rather, they focused their attentions on getting better.

Well, I just knew that I had to do it and... I don't know what motivated me. I just wanted to get better. I'm an active person and I just wanted to get back to the lifestyle that I'm used to. (A8)

Well yeah, I think you always have highs and lows but I always say to myself 'No matter how bad it gets, it always gets better'. So even if I was really down, sometimes I just didn't.... I didn't really worry about it, I just looked on ahead and knew that it would get better. (A3)

Keep a positive perspective

The strategy which seemed most effective was maintaining a positive perspective. There were a number of ways in which this was done including: learning from the negative attitude of other injured skiers, seeing injury as a learning experience, looking for positive examples of athletes who have been in similar situations, and getting back in touch with the love of skiing.

My girlfriend (also injured) was really frustrated and it almost made it easier for me because she was the one who was more frustrated. Just by seeing that I could prevent it myself thinking, 'Geez, I really have to stay positive'. (A8)

I tried to find an explanation and if somebody would give me examples of a different athletes saying that it's happened to before, that you're not by yourself out there, it happened to other people as well, it's going to get better. (A10)

I mean there are times when you do have setbacks and it really gets you down and you think about not bothering with all the pain and working back up to competition strength and be happy the way you are, or whatever. I don't know, for most athletes I don't think that will suffice, you know. They have such a competitive spirit within. You know the thrill of victory, the thrill of meeting a challenge, will get you through almost any situation. (A4)

Accept responsibility for rehabilitation

One athlete in particular seemed to have difficulty getting motivated to do the rehabilitation exercises. The athlete described the process that led to becoming more responsible for recovery.

You just kind of start thinking. Like if you miss it one day, that night you start thinking, 'Well, I had that extra 10 minutes, I could have sat and stretched watching T.V. or something'. So the next day you kind of 'Well O.K., I'm sitting here watching T.V., so I'll stretch' And after a while it just becomes routine. After a while you start thinking, 'Everytime I go to physio, it seems to feel better, so I guess it could be helping'. So you get into a routine of going. It's only an hour and a half out of your day. So, it's nothing major lost. (A6)

Another athlete talked about the importance of distinguishing between needing a break and motivational difficulties.

I think it's just really important to know when you're ill, what is psychological and what is physical. Because sometimes it's easy to say, 'Ah, I don't...I'm not going to do it today.' But you have to figure out whether your body is telling you you shouldn't do it or if it's your mind. Whether your mind is just being weak. (A2)

Behavioral strategies

Adopt an aggressive treatment plan

As mentioned earlier, inactivity made the athletes grow restless. One method of combatting this was to begin physiotherapy as soon as possible so that energies could be focused on what was being done rather than not done.

As soon as you can start moving your toes, you move your toes. As soon as you can start moving your leg, you move your leg. As soon as you can walk, you walk. It doesn't mean you'll be running but it means you're moving it gradually. So you cut your down time down and that makes you recover so much quicker. (A7)

Going too aggressively did have its drawbacks, however. For example, one athlete popped a hamstring muscle while working the knee. Interestingly, the athlete didn't seem bothered by the incident. On the contrary, the athlete was proud to be working so hard and described it as a "small, small stumbling block". Clearly, the best way to avoid such setbacks was to know when to push and when to hold back as the following athlete did.

I just made sure I was smart about when I pushed it to the limit and when I held back and I think that's helped. (A3)

Try alternate treatments

The athletes were open to trying a number of approaches if they thought it would help get them speed up recovery. This usually happened when an athlete encountered obstacles or complications with rehabilitation.

I tried everything. I tried different therapists, wild therapies. You know I was seeing three different therapists a day at one point just to make sure I was getting it all in, that I could somehow speed up my recovery if I saw more people. Basically, I was sneaking around to different therapists not telling one that I was seeing the other. I thought I could speed up the process. (A5)

If you're doing the same thing for a month and things aren't improving and the only recommendation is to keep doing that, that's when you really lose hope. But if you find something different and you try a different approach, then that kind of gives you hope that, 'Three other things didn't work but this is going to be the one that's going to make the difference'. (A1)

This same athlete spoke of the benefits of massage therapy:

The hands-on treatment, the actual physical manipulation with massage and the mobility of the hands and things like that. That's where you really get a lot of gain out of it. (A1)

Become educated about injury

Another method of dealing with complications in rehabilitation involved becoming educated about the injury. The following athlete mentioned being able to determine what was wrong as a result of learning about the knee.

I got educated on it quite a bit. I was reading kinesiology books and finding out what made up a knee so I could go in to the doctor and discuss it with him. And the longer it went on, the more I found out the workings of a knee and was getting encyclopedias and the diagrams. It helped me because they (doctors) wouldn't give me a diagnosis of what was the problem with the knee and the more I knew about the knee and the more I felt where the pain was coming from, I could start to come up with my own theories of what it was. (A1)

The athlete with CFS talked about the difficulty in obtaining information about the illness and having to look to less traditional sources for advice.

I searched everywhere because Western doctors didn't believe in it at that time. So I went to naturopaths and to chiropractors, and kinesiologists, and nutritionists, and I tried to find ways to help myself. (A2)

Another way of learning about injury involved learning through observation.

Like for me, I watch.... (name deleted) he's such an amazing athlete that just to watch him recover... You always hear about how he's doing, what he's doing. So you know, I listen to what people say about him and what he does. And you kind of take what he does and put it in your own way and try to do it. (A6)

Do healing/performance imagery

During their recovery, some athletes used a combination of healing imagery and the performance imagery they had developed through sport, while others used performance imagery only.

I continued doing the same imagery that I did when I was healthy on visualizing training and competition. And I also did some mind-body healing aspects of imagining that the blood is flowing and that oxygen is coming through and you're getting healing processes happening. And you try to enhance it from the stuff that I spoke to sport psychologists about and they said that they believed it worked. I think it helped when I returned. You know, how much did it help in the healing process. That's for anybody to guess. I believe that it works. (A4)

Je sais que dans ce temps-là je faisais beaucoup de visualization. Je pense que ça c'est une des choses qui m'a aider à bien performer quand je suis revenu. Parce que je n'avais pas l'entraînement. Donc, je pense que ç'a été un atout pour moi qui m'a aider à avoir des bons résultats quand je suis revenu en ski pour faire les critères, si tu veux, refaire les critères pour me garder, pour avoir mon statut d'équipe. (A9)

Performance imagery was usually done closer to the return to sport or when athletes were back on skis since that's when the athletes felt it was more relevant.

I think closer to the time when you get back on skis again, that's the time to do a lot of visualizing. Once I did decide, 'Yes, I'm gonna race', and started to train really hard, that's when I did start thinking about skiing. I started thinking about what could I do better than before, better than last time to be in better shape. What other things could I do? Visualizing myself skiing. I watched a lot of racing videos. Saw the way I used to ski, compared that to the way others ski. I got a good mental picture in my mind of what I wanted to achieve when I did get on skis. Once I was on skis, it helped a lot. (A4)

The following athlete used a combination of physical training and performance imagery in preparation for the return to sport.

I got back onto the snow and it was like I hadn't missed a beat because I... By Christmas time I was feeling a lot better and I was starting to train. And then in the spring time, I sort of started getting back into ski racer mode. So I started training hard. What I did almost everyday was I watched videos of skiing and I'd stand up and I'd watch it and I'd move with the skier. So I trained almost everyday on snow and in my living room. When I got onto snow in the summer time it was like I had been training for a long time. It was amazing the difference. (A2)

Take a break from rehabilitation

While the previous strategies centred more on attempts to speed up recovery, taking a break from rehabilitation was a strategy used to find renewed motivation and enthusiasm. A number of athletes took a break from rehabilitation during their recovery. Some took a break when they felt they had reached a plateau and others felt that they were progressing very well and, therefore, could afford to take some time off. In all cases, taking a break had a positive effect in that the athletes came back feeling reenergized and with a renewed commitment to getting better.

I got to a point where you know, I could have stayed around and done physio but I felt that I just needed to get away. Just being able to take a breather from it and come back sort of recharged. You know, just take it out of your head for a bit and have fun and hobble around Disneyland. It was just awesome. I came back from that and things started picking up. (A8)

I progressed very well and then sort of halfway through my recovery process, I took some time off and I went on a bit of a vacation. I think it actually worked out really well for me because a lot of athletes come back from knee injury with tendonitis or a problem like that. And I think because I was able to take a break in my training session, a six-week break, being in the salt water in the ocean and relaxing instead of training every single day, it was what really helped me out.
(A5)

So when I had this little vacation, I brought my bike along and I started getting out biking, going for long rides and hard rides. I kind of realized, 'Wow, this feels good to get out and work hard again and to think about skiing things or getting my body strong for skiing again'. And that's when I really realized... You know, it was kind of a turning point where I really realized, yes, I did want to race again and I'd better get my butt in gear and get training to get back the strength.
(A4)

It was interesting to note that although the athletes recognized the value of rest, some spoke shamefully of taking a break, as if it implied that they weren't truly committed and didn't do everything possible to return quickly. In other words, there was this pervasive belief that recovery required constant work and that taking a break only slowed the process.

Progress in Rehabilitation

Progress in rehabilitation was the index by which recovery efforts were measured. It also provided information regarding if and how coping strategies were to be adjusted. Assessments of progress also had an emotional impact on the athletes. Progressing on time or ahead of schedule was always uplifting and encouraging whereas slowed progress or hitting plateaus was frustrating and disappointing. It was important for the athletes to be given accurate information both at the beginning and throughout the recovery process because the goals set on the basis of this information formed the basis of later judgements of progress in rehabilitation. However, as the following quote suggests, the best indicators of progress were gains in mobility.

The best thing is the day you can put down one crutch, and then get down to no crutches. And then I think quite often with knee injuries and operations, the progress in rehab varies from person to person. The best thing about being an athlete that recovers fairly quickly is that you're told one thing and you can do it 3 or 4 days earlier. (A4)

Decision to Return to Sport

Based on the progress made in rehabilitation, the athletes reached a point when they faced the decision to return to sport or to continue with rehabilitation. This decision was influenced by four factors: perceived readiness, medical clearance, pressure from the team, and the importance of the competition.

Medical Clearance

For the most part, the decision to return to skiing was based on recommendations from doctors or physiotherapists. With the exception of the athlete who suffered a career-ending injury and, therefore, could not return to skiing, the following discussion pertains to being able to return to the ski team to compete once more. The following athlete described the elation of being given medical clearance to return to skiing:

It's an energizing and uplifting thing when you hear that you can go out ... It's like getting out of jail. All right, I'm on parole! (A4)

However, it was mentioned that the doctor or physiotherapist had to be explicit about what the athlete could and could not do at this point, i.e. easy turns versus steep hills. As was mentioned, athletes were eager to get back to competition and unless told otherwise were likely to over do it when they returned. It was important therefore that they be held back or saved from themselves.

You're chomping at the bit, you want to go, you want to race. You want to be out there. You need somebody to pull the reins in on you and tell you, 'No, you can't do this.' And when the doctor kind of hems and haws and says, 'Yeah, you can start to go back and run some gates now and build it up.' Well what an athlete hears then is, 'I'm ready, I can go'. You need somebody to say, 'Slow down.' They've got to hold you back because as an athlete, as a racer, that's what we want to do. We want to go fast and we want to do it now. Everything we do, we're told we're performing at an elite level, you know we're doing things that a lot of people aren't doing. So you think, 'Yeah, I've got to keep doing stuff that is sort of pushing the envelope of what everybody does.' (A1)

This is another example of why it was imperative for medical personnel to have an understanding of the athlete mentality. In recognizing the athletes' eagerness they could adjust their recommendations accordingly. It was also important for the athletes to be given information as to what they should expect in terms of physical abilities once they returned. One athlete explained the confusion between being able to return to skiing and being fully recovered, i.e. back to preinjury level, and how this led to setting unrealistic performance goals for the first season back.

I thought that because I was spending so much time in physiotherapy and that I was training, you know, I had such a regimented training program, I was so focused on coming back that I was really expecting a lot. (A5)

It must be stressed, however, that regardless of the information athletes were given when medical clearance was sought, the ultimate decision was the athlete's. For instance, although the following athlete was warned of the possibility of taking ill again, the athlete, anxious to make the Olympic team, decided to return to skiing; a decision which was supported by CAST and the coaches. As the doctor had predicted, the athlete fell ill again.

C'était la décision du médecin surtout qui me disait, 'dans mon opinion, tu n'as plus, le virus est parti.' Comme le médecin me disait, 'ton système immunitaire n'est pas à 100%. Donc tu peux retomber malade. Pas du mono, mais tu peux avoir certaines bactéries qui peuvent t'affaiblir par après.' Bon les entraîneurs après la décision du médecin, ont décidé de me prendre avec eux en Europe au mois de janvier et c'est pour cela que je suis parti au mois de janvier. (A9)

The following athlete, however, had learned from the mistakes of others and was more cautious about when to return to skiing:

I was a person who would always ask the doctor, 'Do you think it's O.K. if I go skiing now, or if I go play golf now, or if I take my brace off now?' I've seen too many people come back from injuries too soon and get injured again. So I wanted to make sure that wasn't going to happen to me. (A3)

Perceived Readiness

In addition to obtaining medical clearance, athletes also had to feel that they were ready to return to skiing. As one athlete explained, the focus in rehabilitation was on the physical aspects of recovery and recommendations were based on physical readiness. However, physical recovery often preceded psychological recovery and since the issue of mental readiness was not addressed in rehabilitation, athletes were not prepared for the psychological difficulties encountered upon returning. The following athlete spoke of the confusion which arose from being physically ready but not mentally ready:

I couldn't explain it. I couldn't put a finger on it. I mean, I wasn't sore, I wasn't tired, I just wasn't skiing with the ability that I had. It could have been because I was off snow for so long, I lost the feeling that you need. It could have been because in my mind I just wasn't ready to take the most aggressive line that you need to take to go fast. So just maybe, mentally, I was not being aggressive enough. (A5)

There was one athlete in particular who made a habit of not obtaining nor heeding medical advice regarding the return to skiing. This athlete took great pride in the ability to heal quickly and strove to out do established recovery times. Decisions to return were made in comparison to others and based on hearsay, i.e. another skier who had the same thing was back within ten days, rather than on sound medical advice. The athlete also tailored training programs

in accordance with what others were doing, i.e. how much weight they could bench press, and perceived readiness was based on being able to do the same. This athlete's approach to recovery proved detrimental in that an unrealistic perception of readiness led to a premature return to skiing and subsequent reinjury.

Importance of the competition

As with the decision to get treated, the decision to return to sport was heavily influenced by the importance of the competition determined on the basis of its relation to the Olympics. Again, the emphasis was on short term gains rather than long term consequences.

Well, I had two bad head injuries. Both were suffered in (place), the two bad ones were in (place) and they were always two weeks before the Olympics. And so I'd usually go into the hospital for a week, get out and go to the event. (A7)

Although they knew that the chances of success were very slim if not impossible, some athletes could not bear to let an opportunity pass them by without at least trying to ski in the event. For some, the feeling of not knowing was intolerable.

Damned if I was going to miss another Olympics. So I said, 'Listen, I want to go, at least to see. You know if I sit at home, I'll never know. I want to at least go and train on the course and find out.' (A4)

For the following athlete, the combination of an Olympic event and team ranking was a difficult situation because there was a lot of pressure to perform in the event. The pressure combined with the athlete's own enthusiasm clouded the athlete's judgement. Fearing disapproval from doctors, the athlete neglected to get medical clearance prior to returning to skiing.

So I had that operated on and the doctor told me that I should be good to go within a couple of months. This was the year of the Olympics. And I was the number one ranked racer on the Canadian team so there was a lot of expectations for me to compete and to be a threat for the gold, anyway. So yeah, there was pressure from the team and also from myself and a lot of my fans. It maybe kind of inhibited my view of what was really going on in my body. And I thought I was strong enough. But I didn't really get a good professional opinion on whether I was strong enough. I later asked the physio that was working on me, she told me 'if you had asked me, I would have said no way'. So would have a lot of others but I was never really approached or asked or examined and given a clean bill of health to go racing again. (A4)

It is interesting to note that the athlete diffused responsibility to medical staff with regards to ensuring fitness to compete. When asked if the advice of doctors would have been heeded, the athlete responded:

That's hard to say. Had it come from enough people and enough people that I respected their opinions enough, I probably would have heeded it. It would have been very hard, you know the Olympics. But I went anyway. (A4)

Pressure from CAST and the Coaches

Some athletes felt that there was pressure to return sooner than ready while others felt that this was not so. The following athlete spoke of the combination of youth and pressure from the team as contributing to a premature return to skiing:

I went back way too soon on one injury coming out of the Olympics. It wasn't a problem of coming back for the Olympics. I was pushed a little bit to come back and race in the Canadian championships and then keep racing after that because they needed my FIS points back here in Canada. I was too young and naive at that point, I guess I should have just said 'I raced the Olympic guys, see you next year, I'm going home' and I should have done that because I had a couple of other little injuries and that hurt me more than the initial fall. I should have gone home and rested, and then built back up. (A7)

Pressure to return was real or perceived and seemed to depend on the athlete's performance record and the team's perception of the athlete's work ethic. In other words,

perceived as a hard worker, CAST didn't push the athlete but if perceived as a slacker, CAST applied pressure.

So the coaches realized that I wasn't a slacker. I would always do the best I could, I think. And in training I proved that I was always in good shape and I would always try to excel. And I don't think that they ever pushed me. I don't think a coach would really try and push me in that regards. I don't think any of our coaches are like that really. I mean I could be totally wrong, you know, but I couldn't imagine a coach ever saying 'You should be doing this and you should be at this level by this time'. I think all our coaches are very sympathetic toward injured athletes. (A5)

The following athlete agreed that the coaches were sympathetic and claimed that even if there was pressure to return, it was up to the athlete to take responsibility and resist the pressure.

Well, the coaches are looking out for your best interest, trying to get you out there to ski. Like they all want you back out there but they all realize that it's not worth it to push it. Anyways, it's not like there's anything they can do. If I don't feel comfortable skiing, I'm not going to do it. No one else is going to benefit if I go skiing. No one else is going to benefit if I break my leg, you know. You're skiing for yourself, not the coaches. (A6)

The athlete did acknowledge, however, that as newcomers to the team, athletes did not feel comfortable challenging the coaches so they did as they were told. Finally, it was mentioned that some athletes were being kicked off the team while they were injured. This had a negative impact on injured athletes and pressured them to return too soon.

It's a negative thing because an athlete.... you see this happening to other athletes, you think 'I've got to get out there, I've got to get returning to competition'. You're going to push it too soon, too much, and reinjure or restress it... I mean, if you feel lucky it's going to work out but... (A1)

Return to Sport

As with the rehabilitation phase, the return to sport was marked by an ongoing cyclical process between the cumulative effects of stressors and coping resources, coping strategies, and

performance outcomes. As shown in Figure 18, the cycle ended with full recovery or reinjury, in which case, the entire process began anew.

Stressors

Classified as stressors were factors which contributed to the difficulty of the return to sport following a serious injury. These were factors which posed demands on the athletes' coping resources and which influenced their coping ability. Stressors encountered in the return to sport occurred at three levels: physical, emotional and cognitive.

Physical Stressors

Injury-related symptoms

Some athletes spoke of the pain and discomfort experienced upon the return to skiing and throughout the comeback season. The following athlete spoke about the difficulties associated with a back injury and how performance was affected as a result:

Right, that affected me physically, something that I could really feel. My knee injury, I didn't have any knee problems after that. I never felt like at the end of a day like, 'Oh geez, my knee hurts.' But this back injury that I had, I really felt limited and hampered in my normal skiing. I didn't have the neck mobility to be able to crane my neck up to see properly. So I had to ski at a higher position. I didn't have the shoulder mobility to bring my arms in as well. And because I was so tense, my legs were tired halfway down the course. So all last season I think I was combatting this problem, trying to get over... trying to get that flexibility, the mobility back. That's what I think screwed up my season last year. (A5)

The athlete who had mononucleosis spoke of the limitations imposed by the illness and how there was a great deal of fatigue associated with the return. Thus, the athlete had to be extremely vigilant and careful to rest when tired. As a result, progress was slower than the athlete had hoped.

RETURN TO SPORT PHASE

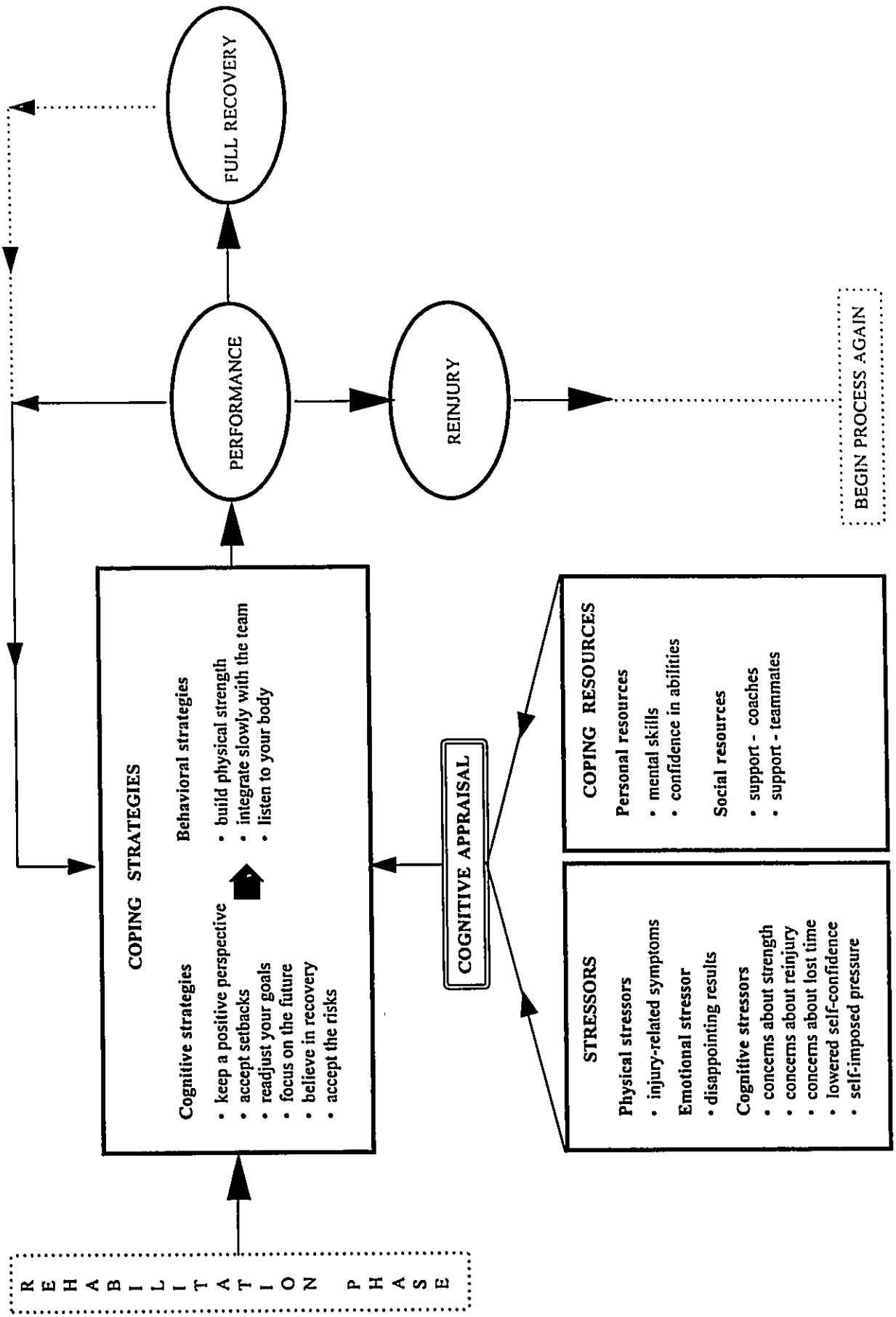


Figure 18: Sport injury process model - Return to sport phase

Emotional Stressors

Disappointing results

In general, the athletes had very high expectations for the comeback season and expected to be performing close to preinjury levels. As a result, a number of athletes encountered a series of disappointments when the results obtained were less than they had hoped for.

It wasn't a horrible season but it wasn't a season that I was expecting. I had two 4th place finishes, a 5th place and a 7th place finish or something like that. But coming off the season where I had won a World Cup and a medal at the Olympics, it was a let down. (A5)

In looking back on their experiences, the athletes agreed that the first season back following injury was a "write-off" in terms of obtaining top results. In fact, one athlete suggested that after a serious crash, it takes one full competitive year to get back to preinjury levels.

Cognitive Stressors

Concerns about strength

When discussing the kinds of worries that run through an athlete's head the first time back on the hill, one athlete mentioned concerns about strength.

A lot of questions going on in my mind. A little apprehensive as to what its going to feel like, 'Is it going to be strong enough? Is it going to feel the same?' It's a big relief when you finally do get on snow and make a few turns and go, 'Hey, it's not too bad, I'm doing all right.' Quite often though, when you do get skiing again, you're still a long way from full strength. (A4)

Concerns about reinjury

Related to concerns about strength are concerns about reinjury. A few of the athletes spoke about the fear of reinjury and being apprehensive and tentative the first time back on the

hill. When asked if there were any thoughts about reinjury upon the return to sport, one athlete answered the following:

Yeah, immediately after (return) you do. I'd say, the first few times on snow you do. I had another injury at the beginning of last year which really screwed up my season last year. After about two months, I came back and skiing I was very stiff. And the first time, I remember starting to fall, I just went into a ball, I thought 'Oh my god' and, boom, I went over exactly like the time I crashed before and I thought 'Oh, geez. Here I go again'. But I got up and it was all right. But yeah, that's the first time I thought, 'Geez, I'm really scared to do this again.' (A5)

Concerns about reinjury were most apparent among the athletes who had returned too soon. Doubting one's physical readiness made the athletes more aware that their weaknesses made them more vulnerable to reinjury. The following athlete described the confidence gained from being in top physical condition prior to returning and how this alleviated any concerns about reinjury:

By the time I was able to ski I had done everything that I had done before as far as dryland work and weights and everything. I made sure I was 100% before I started skiing again. So, I had no fears whatsoever. You know, I knew I was healthy, I knew it wouldn't be a problem just the first couple of turns maybe feel a little awkward but once you do that it's just like it had always been. (A3)

Concerns about lost time

Some athletes mentioned that they were worried about the training they had lost and how that would affect their performance. They were also concerned that their coaches had lost confidence in their abilities.

You sort of feel like you've missed a period of training and you wonder if you'll ever be able to recover it. And you think all the other athletes have gotten ahead of you, have sort of leap-frogged past you. And you think that the coaches are going to think that you're behind. And you think that they've lost a bit of confidence in you because you've lost so much time, that you aren't progressing at the levels that they would like, that you've missed so much invaluable time that they... You wonder if they will have that confidence in you that they had before you crashed. (A5)

Lowered self-confidence

The concerns that the athletes had were an indication of lowered self-confidence in their abilities which was further exacerbated by poor performance results. As with concerns about reinjury, lowered self-confidence was most likely to be present when the athletes returned to skiing too soon.

Self-imposed pressure

Often self-imposed pressure was a result of youth and inexperience. Most of the pressure to perform stemmed from the athletes' preoccupation with how they were perceived by their coaches. The athletes wanted to please their coaches and prove that they were worthy of the coaches' respect. In addition, the athletes were in a hurry to catch up with the performance level of rest of their teammates. The following athlete described how doing so contributed to more problems:

You get out on the hill and you want to go out and ski hard when they're around just to show that things are going well and keep them thinking positive about you. You're worried that they're going to sort of write you off and say, 'Hey, it's going to be a while before he comes back', and kind of lose their hope. After I came back from the surgery and it started to deteriorate again, I was trying to stick to the time lines and trying... I thought, 'Well, if I don't stick to these time lines that 90% of the other athletes have done, the coaches are going to question me'. So you're pushing and I learned from that mistake. I wouldn't do that again. I didn't with my second injury but I think that contributed to the onset of the second half of my problems. (A1)

It was further explained that athletes were more likely to feel pressure from the coaches as a result of their youth and inexperience.

A lot of it is your own perception. You know the coach asks you, 'Do you think you can do weights with us today?', and you feel this pressure that he's trying to get you to do weights. And as an athlete you're trying to live up to those expectations and you kind of learn that you don't have to. But as a first time injury, especially when you're younger, you know when you're 20, the first time you're going through it, you feel much more pressure from them to do that. (A1)

Coping Resources

Classified as coping resources were personal and social factors which served to offset the impact of the stressors encountered in the return to sport.

Personal Resources

Mental skills

As with the rehabilitation phase, the athlete's level of mental skill laid the foundation for the coping strategies used to cope with the pressures of returning to skiing following a serious injury. The skills addressed in the return phase included maintaining a positive perspective, focusing on the future and perseverance. Interestingly, although a number of athletes spoke of visualization as an important aspect of their training, it was not mentioned as a skill used upon the return to sport or during the comeback season.

Confidence in abilities

Although there were a number of strategies the athletes used to enhance their threatened sense of self-confidence, it was clear that the athletes had a high level of self-confidence prior to injury. The following athlete discussed how athletes had to have full confidence to be able to ski at an elite level and that this sense of confidence had to have a solid grounding.

I've never believed that you can go out and say, 'I've got to have confidence, I've got to have confidence'. There's no such thing as doing that in downhill skiing, being at the top of the course and going, 'I can do it, I can do it'. All you do is go. If you're not prepared for it, you go off at 80 miles per hour and hit the trees.

And so your confidence is something that is very real. It's not like a salesman walking into a presentation going, 'Well I blew that', and go back and try it again. Because you don't get chances to do it again if you blow it. But, the idea is that you've got to have confidence and it's got to be real confidence. (A7)

The following athlete described how learning to be confident was a skill that was acquired through years of experimentation and practice:

That's how I've always worked. Basically, I work off confidence and I generate it any way I can. I've been getting better and better learning how to stay at a high level and what things that I shouldn't really spend more time thinking about, what things I should focus on and really try and expand on them and work off things like that, positive things. I've always sort of been like that... I just sort of learn a little more ever year. I have my own patterns and processes. I know through years and years of doing it what works for me. So those are the things that I concentrate on. (A5)

Social Resources

Support from coaches

Generally, coaches played an important role in helping the athletes rebuild their confidence when they returned to skiing. They were very accomodating and gave the athletes the freedom to work at their own pace. Furthermore, doing some extra one-on-one work with the athletes to help them with problem areas was greatly appreciated.

Bon premièrement, je pense que les entraîneurs ne s'attendaient à rien. Avant les courses il me disaient, 'Bon, on le sait que tu sorts d'une mono, on va te faire faire des courses, fais ton mieux et si tu te sens trop fatigué, arrêtes et prends quelques jours de repos et puis on recommencera un peu plus tard.' (A9)

The head coach we had at the time was very accomodating. He took me personally and did some one on one training with me and worked very closely with me. And I was very happy that this coach who didn't know me, who was just hired, would take the time away from the team and actually come and work with someone like me who was just recovering, not able to do the things the rest of the team was doing. But he had the interest to help me out and I think that gave me a lot of confidence. (A5)

One athlete who had sustained a number of injuries mentioned how having been somewhat injury prone affected the support received from the team. It was felt that support was more forthcoming with the first injury than with subsequent ones.

With my first knee injury I was getting the positive input and feedback from the coaches, other injured racers, lots of moral support. And you realize you can come back. (A4)

This same athlete, however, had a tendency of returning to the sport before being fully recovered. Thus, the lack of support with later injuries may have been an indication that the athlete's behavior had worn the patience of some key support providers.

Support from teammates

One athlete spoke about there being good camaraderie on the team and that teammates were both sympathetic and competitive which the athlete felt was a good combination.

It's a very competitive atmosphere and the athletes will, you know, they won't put up with a lot of whining or anything like that. So you try to limit your complaining or anything like that. It's a good team, I mean, they're sympathetic also. If they see that your struggling, they'll help you out. That's the kind of environment that you need. You need people to push but you don't want to bore people with your complaints either. So the team environment is good for that, I think. (A5)

In the main it seemed that the athletes were very supportive of each other and offered encouragement and advice to returning skiers. One athlete talked about the experience of returning with the team after injury and finding that the absence seemed to have gone unnoticed.

Well, it's weird. You always think that because you've been away from it for so long that the other athletes are going to be very eager to see you. But, you know, they're not. You know if I see an athlete I haven't seen in a while and he's been injured, it doesn't seem like he's been away that long because the whole team is kept functioning like a team and you don't really notice a single athlete's absence. And it that regards, I guess you sort of.... you have to realize that, 'Well geez, it's not that big a deal that I was gone.' I mean, I don't know why you would expect

anything out of the ordinary. I mean it's almost common that every athlete gets injured at one time in their career, they're out for a while and then come back to the sport. (A5)

It wasn't clear whether this was a deliberate avoidance of the topic or an indication that teammates were happy to see fellow skiers return but weren't sure how to express it or what support to offer. It was an awkward situation because they didn't want to dwell on the injury and at the same time didn't want to boast about their own performance. It was interesting to note that for a common occurrence, there tended to be a substantial degree of avoidance about the topic of injury.

Coping Strategies

Coping strategies included a combination of cognitive and behavioral techniques that the athletes used to deal with the stresses of returning to skiing following a serious injury. Both cognitive techniques centred on regaining confidence and overcoming the fear of reinjury.

Cognitive strategies

Keep a positive perspective

Keeping a positive perspective was an effective strategy for confronting the stressors of the return to sport. One athlete described keeping a log of good performance results throughout the injury process as a means of staying focused on the positive aspects of the return. Remaining positive also involved pulling out lessons and making adjustments accordingly.

I try and pull anything positive out of a training session, I don't want to carry anything negative. Or if I have something negative, I'll take it constructively and change something. You know, I'm pretty good like that. You know, if something's working for me, I'll stick with it and if it's not, I'll change it to accommodate the better process. If I have one good turn on a course or something like that, I can take that, you know, I can compartmentalize that. The rest of my run was bad but I can say, 'O.K., finally I made a good turn. Maybe if I make a

few more of those...' So that's what my whole injury process was like coming back. I had to sort of write things down and take these small little you know confidence building steps until I had everything back in place. (A5)

Accept setbacks

Another coping strategy involved accepting that there would be good days and bad days and that performance would not always be what one expected.

I realize that skiing, like a lot of things, it's cyclical, it goes up and down. Sometimes you're down and you know you'll come back up. And when you're up, you know you're not going to stay up. You start realizing everything goes like this (motions a circle), so it makes things easier. (A5)

Readjust your goals

Part of accepting setbacks involved acknowledging that performance would not be at its best during the comeback season and readjusting one's goals to a more realistic and achievable level.

Well, basically I had to readjust my goals. I mean, I realized that I wasn't going to meet any of my goals so... I think you have to set your goals realistically and I think then you can gain confidence by achieving goals. But you really have to tone them down from where you were before (A5)

Focus on the future

It was important for the athlete to be able to let go of an unsatisfactory performance and not carry negative feelings into the next race.

Well, World Cup is sort of like that. It's interesting the way you can do bad at one race but then you move locations and you start on a whole new, you know it's a whole new slate you have. You have three training days and then a race. So every new location you go to, you can forget about the old one and get motivated and try to bring yourself up to race at this next race. (A5)

Believe in recovery

As one athlete mentioned, being confident that the injuries were fully recovered gave athletes the mental strength required to perform at competitive levels once more and to overcome the fear of reinjury.

I think I was always pretty strong that way (mentally). Just through feeling good about my injuries, knowing that they were healed and there was going to be no further risk of injury. I think if you work out and get strong again you gain a physical confidence that will help you excel in your sport mentally because you know you're already strong going into it and that just helps a lot. (A3)

Accept the risks

Apart from believing in recovery, overcoming the fear of reinjury involved acknowledging and accepting the risks involved in the sport of skiing.

My confidence is based on something other than, 'Well it happened once, it's going to happen again now.' If you're ready to go back, there's no reason it should happen again, until it happens again, which is a chance. And you create your own odds. Because in downhill racing, the odds are that you're going to get hurt. The faster you push it, the more chances you take, the more likely it is that you're going to win. But it's also more likely that you're going to pay the consequences of that trying. And you play with it. And that's all part of the confidence as well. If you're confident and you know you can take those chances, you go for it. And I guess it comes all the way down to my training, is that I take chances. (A7)

Behavioral strategies

Build physical strength

One athlete talked about how building physical strength contributed to a renewed confidence in the ability to ski at a high level and helped the athlete deal with concerns about reinjury:

It takes a while, you have to ski again until you have the confidence that you're not going to think about something like that (reinjury). And you have to be able

to train like you weren't injured. You have to be able to train like, not ski training, I'm talking about weight training, physically training, like you would if you weren't injured. So by training, by realizing that you're strong in the gym and you're physically healthy, then you can transfer that easier into skiing. And then if you're thinking on the hill, you're thinking 'well, I'm stronger than I was before' you know, that will give you confidence on the hill. (A5)

Integrate slowly with the team

Several athletes discussed the importance of starting slow and taking small steps as a means of regaining confidence.

I'd start off on a very flat hill that had just been groomed, very smooth and very flat, and I'd just ski there. And I'd work on feeling and finessing the turns and what not. And as the leg got better, I would go faster and faster and steeper and things like that. And that in my opinion is what builds your confidence again. (A7)

I integrated slowly with the team. That's how you have to do it. Basically, you come in halfway through a camp or at the beginning of a camp when the team is at a different level and you have to sort of slowly progress at your own rate until you're comfortable training with the team at their level. So that's what I did. (A5)

Listen to your body

It was important for the athletes to pay attention to and heed physical signs indicating that rest or time off was required. For instance, an important aspect of dealing with the physical stresses of trying to build one's strength up again involved recognizing when rest was necessary.

The following athlete talked about the benefits of rest on both a physical and a mental level:

C'est important de prendre son temps et de vraiment s'écouter puis de sentir si je suis trop fatigué, il faut que j'arrête et prennes du repos. Parce que si t'en fait trop, bien, un moment donné, ton corps est plus capable. Et puis même la psychologie tu peux venir brûlé. Voir trop de piquets, un moment donné, c'est... C'est effrayant comment on peut perdre le 'touch'. Même si t'en fait beaucoup, si t'en fait trop des fois c'est pas bon non plus parce que tu perds un certain 'feeling' et puis ça des fois ça peut être catastrophique. Tu performerás pas. (A9)

It seemed that the value of rest was best appreciated by the athletes who had suffered illnesses. This is not surprising given that in one case, a lack of rest contributed to the illness and in another it exacerbated the symptoms. A couple of athletes chose to ignore the signs and instead of taking a break, decided to train harder and work harder. In the case of the following athlete, the importance of the competition was an influential factor and the athlete paid a heavy price for ignoring the signs.

I had had three training runs on this course and I wasn't fast, you know. I could tell I wasn't strong on the turns and kind of sliding and chattering and not carrying a lot of speed. But I thought, well you know, if I just ski hard enough and take care of things and try to do all the extra I can and strengthening I can, I should be ready by the time the Olympics come which would be like another month after the time of this race. However, race day I had a crash and did the splits and blew out this knee. It was actually the same leg that the weakness was on. (A4)

Performance

The performance results the athletes obtained provided important information regarding their progress and the success of the coping strategies used. A number of athletes agreed that the biggest boost in confidence came from obtaining good performance results.

I generate my confidence through skiing. You know, I can't really fool myself into saying, 'Geez I feel really confident today, I'm really going to have a good day.' I know that when I'm skiing well, when I have a good result, then that will boost my confidence. I have to have a tangible, something tangible, some training run results where I've done well. That, to me, is encouraging and that is the best source of confidence building that I can think of. (A5)

In the case of the athlete who had mononucleosis, obtaining good results upon the return to skiing was a false indicator of the athlete's physical readiness. As it turned out, the athlete had a few good results and then fell ill again. It seemed that the athlete's recovery status had been misjudged. Another athlete described the disappointment of obtaining poor results throughout

the comeback season:

I thought I was rehabilitated but I missed some training camps in the early summer and that whole year. The whole competitive season was horrible for me. I don't know, now... it didn't seem like I was lacking any confidence, it just, there was something that... I had lost the ability to ski fast for some reason. Physically, I thought it was all right and mentally I thought I came into the season all right but something was just holding me back and I couldn't figure it out. And slowly it started working on my confidence. And that whole year was just a horrible experience for me. (A5)

Overanxious to chase more confidence-building results, a number of athletes admitted to returning to skiing before being fully recovered and acknowledged that the premature return contributed to the poor performance results which ensued. In some cases, returning too soon also led to further injury.

I was back there and I was being pushed to get back into it. I knew I really didn't want to be there because I knew I wasn't ready yet. And it wasn't worth it to me to be there. And I actually crashed again. And that hurt. And that shook me up a lot. And that took a lot to come back from. 'I'm tired! This is it! I've had it!' And then that took me all summer to recover from that because my energy had gone down and the enthusiasm, the spark, was taken out. As soon as your spark is gone, it takes a lot to refire it. (A7)

I think that's when athletes risk injury the most is when they're not fully recovered and they're trying to compete again. Sometimes it's unavoidable. Sometimes your competitive schedule doesn't coincide with your recovery schedule and you have to do it. Athletes feel like they have to do it. And you take that chance sometimes. (A5)

Some athletes, however, felt that skiing injured did not contribute to reinjury, rather they attributed the causes to external, uncontrollable factors.

The one thing is that the next racer right after me did the exact same thing in the exact same spot. It was just a really icy spot right in a compression and I guess as we switched our weight, you know, turning this way to the left, right in the middle there where the skis are flat, it's right on the icy spot, and your skis are flat and there's kind of a compression and you can swim a little bit, and I think that's what happened, I kind of swam and when I went to put pressure on I just went. And the

same thing with the next guy. Another five or six racers later, another racer did that. So it was, was it because of the weakness or was it just bad luck in that one spot? I've never really decided to think one way or the other. (A4)

Summarizing Social Support

In reviewing the sport injury process model, it is clear that social support was a factor which influenced the athletes' perceptions of stress at every stage in the process. In order to highlight the role of social support as a coping resource, a summary of the social support received by the athletes throughout the course of injury is included in Table 3. These were support behaviors that the athletes identified as being helpful in overcoming the stresses they encountered. The table also lists the corresponding support provider and an attempt has been made to classify the support behaviors according to the taxonomy developed by Hardy and Crace (1991) as discussed in the review of literature (Figure 10, p.66).

The taxonomy consists of three major support types with specific support types within each category. Listed as emotional support are listening support, emotional comfort and emotional challenge; informational support types include shared social reality, technical appreciation and technical challenge; and tangible support involves personal assistance and material assistance. An effort has been made to be as specific as possible when identifying support types. However, where the information obtained did not allow for this degree of distinction, larger category labels were used.

An examination of the support types indicates a few noteworthy trends. The most frequently received support type was informational support and it was offered, at varying times, by all members of the athletes' social support network. Informational support and tangible support were offered most often by members of the ski team, whereas emotional support was

Table 3

Social support received throughout the course of injury

Support provider	Support type		
	Injury phase	Rehabilitation Phase	Recovery Phase
CAST	material assistance	material assistance freedom from pressure*	freedom from pressure*
Coaches	shared social reality personal assistance	informational emotional challenge freedom from pressure*	informational freedom from pressure*
Teammates	shared social reality personal assistance	informational	informational
Former team members	shared social reality	shared social reality	
Family & friends	emotional informational tangible	emotional informational tangible	
Physiotherapists		informational emotional	
Sport psychologists		informational emotional	

* Support type not included in the Hardy & Crace (1991) taxonomy

received from network members with whom the athletes shared a more intimate relationship or who were trained to do so by profession, i.e. sport psychologist. Finally, freedom from pressure by CAST and the coaches emerged as a social support type which has not been identified in the literature. As will be shown in the following section, many of the recommendations offered to coaches and the ski team are based on this last social support type. The implications of the study findings are addressed in the next chapter.

Advice and Recommendations

As a means of generating information on which practical implications from the present study could be based, athletes were asked to reflect on the lessons they had learned from the experience of injury and rehabilitation and to offer advice to athletes and to make recommendations to coaches and the team administration. The results have been organized into three parts and wherever possible, the advice and recommendations are supported by direct quotes. The three areas concerned include advice to athletes, advice to coaches and advice to CAST. Also, since the time lapse between the occurrence of injury and the beginning of rehabilitation was relatively short, the challenges the athletes faced occurred mostly in the rehabilitation and return phase. Thus, the advice offered has been organized accordingly within each of the three sections below.

Advice to Athletes

There was agreement that although undesirable and unpleasant, injury had the potential be a positive experience in that it provided athletes with the opportunity to learn about themselves in terms of the difficulties or stresses they were capable of enduring. In fact, it was pointed out that in the struggle to overcome these challenges, a certain degree of maturity was

gained. Furthermore, as a result of having gone through the injury experience, the athletes acquired knowledge and insights that have prepared them to cope with subsequent injuries at both a physical and psychological level.

There's a lot of lessons you can learn. You learn a lot about yourself and how you deal with a critical period that you would not have necessarily expected to happen. You learn a lot about your character and how strong you are and how willing you are to work hard to regain your physical stamina that you had before. I learned a lot about myself. Even though being injured is not a lot of fun, you definitely learn a lot from it, it's a positive experience it's not a negative experience. I think it's good to look at it that way because you do learn a lot about yourself. (A3)

Rehabilitation

Take responsibility for obtaining proper treatment

Because support was not always forthcoming, some athletes had to take responsibility and ensure that they were receiving the best treatment possible. They advise athletes to look for reputable doctors and find therapists who are interested in working with athletes on a personal level and who have a vested interest in getting the athletes healthy as quickly as possible.

I think athletes, knowing that organizations don't give them that kind of support, really have to take matters into their own hands. You can't wait for the organization to provide the kind of support that they should give. You have to just go on your own and do everything you can for yourself. (A1)

Take responsibility in rehabilitation

It was acknowledged that the strength and motivation to get through rehabilitation had to come from within and that although there were a number of people who offered support it was still up to the athlete to accept responsibility for rehabilitation. This involved learning to discipline oneself both mentally and physically.

All I can say is, as easy as it is to just kind of get depressed about it and do nothing about it.... I think that's what I was doing all summer, I was depressed about it and didn't do anything about it and then I got to here (ski camp) and now I'm paying for it. If you can just get through it, you find you'll come back a lot quicker. Like, I'm going to be out till the end of December. I'm going to be skiing but I'm not going to be racing World Cup and doing what I want to do. So, if there's anything to say, it's just grit your teeth, get through it, and you'll be back a lot quicker. (A6)

Remember that no two injuries are the same

It was mentioned that athletes had a tendency to compare their injuries to those of others. While this provided some useful information, it could also lead to false expectations. Athletes are better off looking at their own cases individually so that they don't try to live up to what others have done. Everyone heals differently as does each injury that one sustains. In sum, it was suggested that athletes learn from the experiences of others but that they also make sure that their physiotherapy and training was suited to their own needs.

First I think you have to look at your case as your own and not to be compared directly with anybody's. You try and take bits of information, get guidelines from past injuries and similar injuries, but you've got to remember that yours is somehow different, your regeneration process is somehow going different than somebody else's. So don't try to stick to some of the guidelines that other people have gone through in recovery times, and recovery methods, and training types. (A1)

Believe in yourself and in recovery

The most effective way to stay motivated through rehabilitation was to keep a positive perspective and realize that injuries are repairable. At the basis of this outlook was a belief in oneself and in the ability to recover. As one athlete mentioned, holding on to the dream can get you through any hardship.

My advice would be, because injuries happen and that you can recover from, keep that in mind and.... The more positive you keep, the more you can really believe that you can come back full-strength to compete as good, or better, than you did before. That's what really keeps you driving and working right through the pain and the setbacks that may come in recovery. To just work through them... (A4)

I think writing down in big letters that you still are an athlete and that you will be at the end of it, and that it's just a different way of getting there. It's something that you have to believe, you can't just be told that, you have to believe in it yourself that you will get over it, regardless, as long as you commit to listening to your body. (A2)

Respect your body

An important lesson that some of the athletes learned was to not take their health for granted. Having been through an experience where they confronted the reality that their bodies were not immune to injury or illness, the athletes recommended that other athletes learn from this and become committed to taking care of themselves.

I think just learning to read your body and your moods and then letting those feelings dictate what you do is really important. Because gut feelings are usually pretty accurate. And whatever decisions you make stick behind them 100%. (A2)

Don't take your health for granted any more. You make sure you take care of your body and do all the right things to make sure that you can be 100% healthy for the race because if you aren't, then you're going to have a tough time doing well. (A3)

Give yourself time to heal

It was recognized that it takes a certain amount of time to heal both physically and mentally. Athletes are advised not to hurry back to skiing but to take the time needed to heal properly.

Take every day at a time. And the most important thing is not coming back too quickly, making sure that you can do everything that you could before you go back into your sport, whatever it may be. There's times where I would go skiing for fun, which was fine because I knew I was capable of doing that. But there's no way that I would have raced because I wasn't strong enough then both physically and mentally. So I'd just tell them (athletes) to make sure that they were fully capable of competing at a high level again and not just going back to do it for the sake of doing it. (A3)

No matter how closely you work with a physiotherapist, it seems like time is the only real healer. You need to rest, you need the time. Your body has its own time line. Physiotherapists, sometimes they can help, but I really feel like you just have to spend time and let your body heal over time. (A5)

Respect your doctor's advice

Athletes had a tendency to believe that their case was different than any other and as a result questioned their doctor's recommendations. However, as one athlete pointed out, it is important to realize that the doctors do know what they're talking about and heeding their advice will contribute to a smoother recovery.

I think athletes underestimate their injuries and they think they can recover faster than all other case history patients have ever recovered. Which is fine. It's probably not a bad thing to think. But it's a bad thing to act on. I mean you can be as positive as you want in your recovery and think you're going to heal but I think it doesn't help your situation to try and move too quickly, post operation or post injury. I think you should really listen to the advice of the doctors. I realize now that they know what they're talking about. You know from a knee injury point of view, if you try and work too hard on an operated knee, it leads to worse problems. (A5)

Know when to push and when to hold back in physiotherapy

Although athletes were eager to recover as quickly as possible, it was important to be able to distinguish between benign pain and harmful pain in rehabilitation so that they didn't cause further damage to themselves.

A lot of it is the physical side, knowing how much to push yourself and when you can push yourself through a little bit of pain and say, 'This is something I have to work through.' And when you realize that if you push it anymore, you're going to do yourself more harm than good. Because there are days that it's going to be sore and you have to kind of work through that to get past it. It's not like you're gritting your teeth kind of pain, it's a subtle kind of pain. Sometimes if you deal with it all the time, you're going to continue to train and it's just a little sore, well it's going to be worse in the end. So just learning the subtle differences of how long you can do that for one day and make sure you give it two days of something very easy to overcome that. That's one thing you learn. (A1)

Work on sport-related skills

In addition to working on physical strength, preparing for the return to skiing involved incorporating ski-specific exercises into the rehabilitation and training program. One athlete recommended doing a lot of side-to-side agility exercises in order to help with turns.

"From this last one a lesson I learned was that just being strong is not the answer. It's not enough. It's like having a big V-8 engine on a car with skinny little tires, you're not going to be able to turn very well. That's kind of what the case was I think. Although I had a lot of strength, the agility and the quick movements from side to side weren't there." (A4)

Return to sport

Don't give up during comeback season

It was mentioned that although they may feel ready when they returned to competition, athletes should realize that their first season back will be difficult and that they will not obtain the results they expect. Therefore, it is best to readjust one's goals and to try to stay positive throughout this period.

You don't realize it until a year after you've skied that your recovery is finally over. And there is a long process. My only concern to athletes is that you cannot lose confidence in that one year period that you have to give yourself post injury. It really is a frustrating time because, physically, you feel 100% but you're not able to fool your body into believing that you're at the same level that you were at before. Trying to push your body to the same level, my body anyway, just would

not respond to that. It would just turn off. I mean it wouldn't take the line that I knew was the fastest. You have to go through the competitive season without getting frustrated, or without losing all confidence, and then quitting at the end of one very poor season. (A5)

Recovery doesn't end with the return to sport

Related to the above is recognizing that physical recovery often precedes mental recovery and it can take up to one competitive year after injury to return to preinjury levels.

One thing I did learn is that no matter how good you feel physically, there is a certain amount of time that you need to reprogram your mind, I think, to overcoming that disability. And it seems to me it's taken a year both times. After a serious crash, it takes one competitive year to be back to the same level that you were at before your injury. (A5)

Take responsibility for your training when you return

It was recommended that returning athletes integrate slowly with the team. They should take their time and be sure to take small steps and build up slowly. Another point that was made concerned not giving in to perceived pressure from coaches. Athletes should realize that the coaches are there to help and that it is the responsibility of the athletes to determine how much they are able to do. If they are not ready to do something, then they athletes should not do it.

You know, don't go out to the camp feeling that, 'O.K., they've brought me out here, I have to do a regular schedule of training.' You just go and say, 'I know this is what I've been doing, this is how much I can do.' You have to go to them and tell them, 'Look, I'm only training half an hour on the bike today and that is good.' Now I would make that my decision. At that time I didn't realize I had a choice. (A1)

Share your experiences with others

Finally, the value of sharing one's experiences with other skiers was recognized and it was recommended that athletes who had been injured should offer advice and help others learn from their triumphs and mistakes.

I go to an athlete now and say, 'I hear you had ACL surgery. You know, there's a lot that can happen in ACL surgery that can be different. And because I went through it myself, I understand that.' I talk to them and if someone has had the same thing as me and is trying to overdo it, I'm going to tell him to back off a bit. (A1)

And I try and do that as much as possible now, I tell people, 'Relax in your training, slow it down. You know, it's not how fast you can start running again after a knee injury or something like that. It's making sure that your ligaments have attached properly, that the graft has healed', and things like that. So I try and help the athletes with my point of view. I try and show them what I did and tell them that it is a long process. (A5)

Advice to Coaches

Rehabilitation

Assist athletes with obtaining treatment

Making sure that athletes were receiving the best medical care let them know that their coaches cared about them and that they had faith in the athletes' ability to recover fully. It was suggested that coaches could be more instrumental in this process by putting working with the team management in this regard.

You're glad for the support but it could be much more. I think they (coaches) should be trying to find you the best possible therapy. I think that's the kind of support you need. This is all physical stuff but that would help the psychological aspects as well because you know that they're trying that much more to get you back. (A1)

Maintain contact with injured athletes

It was mentioned that if coaches had a good relationship with their athletes, it should be maintained throughout recovery. It was advised that the contact should be sincere and not forced. In addition, it was important for the coaches to realize that injured athletes didn't want to hear about the performance of others. It was felt that this could be a setback early in recovery

but helpful later on as it came to serve as a basis for comparison. It was also pointed out that, contact with athletes could be used as an opportunity to express concern by finding out if they needed assistance with anything and how the coach could help. It was also important for the coaches to realize that early on in the process, athletes have mixed emotions about a lot of things and still have to work through them. Thus, this was not a good time to inquire about future plans, i.e. when the athletes were planning on coming back. In other words, it was best not to take the athletes responses during these times at face value.

Give athletes the time they need to recover

It was recommended that when communicating with injured athletes, the coaches should show support by letting the athletes know that they would be given the time needed to recover and that they would also be given freedom to work at their own pace when they returned.

I think they just need to be supportive and they need to understand and they have to give the athlete however much time they need to come back because the athletes are individuals. And I think that they have to also keep in contact with the athletes and let them know that they're important. (A2)

To not put the pressure on the athletes to return. Give them the support in saying that they have the time and when they return to competition, they will be fully supported like they had been before, that they will be given 6 months or a year, whatever it takes, to get back at the level that they were before. (A1)

Return to sport

Build success into training program

Because the athletes' confidence in their abilities will have been shaken by the experience of injury, it was important that success be built into the training programs when athletes returned. It was suggested that this could be done by allowing athletes to rebuild their skills slowly until they are were able to train at the same level as their teammates.

You know, athletes I find will work long and hard as long as they see benefits and results coming because they're motivated mostly by success. Success could be looked at in many ways but success means results, in this particular sport. So they'll work long and hard as long as they're getting good results. If they find they're twiddling their thumbs and not getting benefit, they're some of the first to back out and get lost. So, if things are going well and they're getting what they need out of it, great! They'll be there, I think. (A7)

Communicate support and expectations to athletes

It was suggested that a lot of the pressure felt during the comeback season could be relieved by having the coaches let the athletes know that they are supported. Coaches were advised to verbalize their willingness to let the athletes work at their own pace and to explicitly state that there weren't any performance expectations on the athletes at this point.

As long as you have people telling you that they understand or that they've been there and that they know that it's going to take a year and if you explain this to your athletes and you say, 'Listen, we're not going to expect a lot from you this year. We know this whole year for you is going to be an adjustment in learning how to push your body again, learning how to be able to feel relaxed enough to take the risks that you need to go fast and to be comfortable at the speeds', and things like that. (A5)

Advice to CAST

Rehabilitation

Maintain contact with injured athletes

Athletes felt that it was important for CAST to maintain contact with them during their recovery because it made the athletes feel like they were still an important part of the team. It was suggested that the team establish some sort of protocol when athletes get injured to ensure that they were receiving the best possible treatment and to offer needed assistance.

Well, I think the most important thing is communicating with an athlete who's been injured and understanding how they feel and how they're progressing. You have to talk with the athlete a lot, you have to talk with the athlete's physio and doctor. (A3)

You know, make like a team rule, whenever somebody gets injured, we'll do this and that. As an athlete, you're happy when you perform but when you're not, there's nothing there for you. It's not a support system. Because when I retired, I didn't even get a thank you note. I think it's very important to have some kind of a pattern. (A9)

It was also suggested that CAST should have a resource person assigned to communicating with injured athletes and ensuring that they have everything they need.

A contact person I think would be really good. You could even have them call you up and say, 'How are things going? Do you need anything? Would you like to have this? Would it be better if you were here? Would you rather just be left alone for a while?' (A4)

Give athletes the time they need to recover

Athletes spoke of the need to be reassured that the team would support them and give them the time they needed to recover. In every case where the athlete returned too soon, the athlete had a poor performance or was reinjured.

Athletes find that they get injured, they don't make that recovery in time and they're under criteria and the team isn't able to carry them any more. And some athletes actually have left the team on negative terms because they weren't given the chance for full recovery. I think it really does take a year. Some athletes are given that one year after injury that I said is sort of a write off. They're given that year to prove themselves and unfortunately they don't. They need to be given a longer period. (A5)

Maintain contact with the athlete's treatment team

One athlete suggested that it would be beneficial for CAST to maintain contact with the athlete's doctors and physiotherapists to ensure that athletes were fit to return to competition.

There's a lot of athletes who I'd say, generally, athletes want to get back faster than they should because they feel like they're missing out on something, they feel like they are able to do it even though they may not be 100%. So, you have to receive the advice from doctors and physios to make sure the person is 100%. (A3)

Have a regional base for training and recovery

Athletes benefitted the most from working in an athletic rehabilitation environment. It was suggested that establishing a regional base where athletes could go for physical training and rehabilitation would be very beneficial.

I think having a regional base would be very important. Have a place that I can test, people that, when I'm injured, I can be with them so that.... Not so much the coach but physiotherapists. A centre, like a major sports centre, I think that's fabulous if you have access to that because you're with athletes. I think sharing athlete to athlete is very important for social support. (A10)

Offer assistance with medical expenses

Although most medical expenses were covered by insurance, the time lapse between payment and reimbursement of funds left some athletes in compromised financial circumstances. It was felt that offering financial assistance during such a period would be helpful.

C'est à nos frais et des fois ça peut devenir cher si tu te blesses un genou et puis t'es obligé de faire de la physiothérapie à tous les jours. Au bout de six mois, ça s'accumule et lors que tu es en convalescence tu ne peux pas skier. Tu peux pas... t'es pas payé. Tu ne peux pas faire des résultats pour être payé. C'est un problème ça. Peut-être d'avoir un meilleur découvert, un peu plus pour ces genres de problèmes-là, de traitement pour les gens qui sont blessés physiquement. (A9)

Listen to athletes' concerns

In one particular case, the team's impression of the athlete's work ethic clouded their judgement and led them to ignore the athlete's complaints of discomfort. As a result, a more

serious problem developed. As the athlete pointed out, it is imperative that CAST listen to the athletes' concerns.

If someone says they're injured and they're at this level, then chances are pretty good that they are. So, I would just, if you're a coach, take that into consideration. If it's bothering them, let them go. Then if he doesn't want to do anything to fix it, then you have to start pushing a bit. But, I think once you reach this level, you know what you have to do. So if you're hurting, you'll do something about it. You know, just listen to him. It kind of hurt me this summer, people not listening to me. You know, it kind of sucks when you don't have anybody on your side and you're feeling some pain. If someone listens, it'll get better soon. (A6)

Increase awareness of injury

Some athletes felt that coaches and athletes should be educated regarding the various aspects of injury and rehabilitation and the importance of taking the time needed to recover.

Furthermore, it should also be pointed out that cases are individual and that recovery times differ as a consequence.

I think it would have been good had the team sort of sent out a little write-up on CFS so that people could understand what it was. (A2)

I think the sport science people will have to go to the coaching staff and really educate them on what is physically involved in returning from the injury and making it very clear that no anterior cruciate injury is the same. (A1)

Have a more diverse referral network

Some athletes mentioned difficulties in locating medical personnel which could help in their particular circumstances. It was suggested that in addition to having a national listing of surgeons and physiotherapists, there should be a reference base of alternate therapies and treatments such as massage therapists, nutritionists and naturopaths, for instance.

In closing, the data generated from the study indicated that sport injury was a complex phenomenon affected by an interaction of physiological, psychological, social and environmental factors. Furthermore, the significance of these factors on the athletes' response to injury varied across three stages: the occurrence of injury, the rehabilitation phase and the return to sport. While some of the findings were unique to this study's context, many results which emerged were in keeping with what has been observed in past research. A discussion of the implications of the present study and their relation to previous work is presented in the next chapter.

DISCUSSION

The present study represented an attempt to understand the phenomenologic experience of sport injury from the perspective of international level ski racers. More specifically, the study sought to determine the influences of social support on these experiences. As a result, a substantial amount of data was generated which indicated that the psychosocial responses of athletes to sport injury involved a complex, cyclic and dynamic process spanning across three phases: (a) the occurrence of injury, (b) the rehabilitation phase and (c) the return to sport. In an attempt to capture and represent the interactive nature of the numerous variables which influenced the athletes responses, a process model of sport injury was developed. Since the study was based on an integration of theories of cognitive behavioral, stress and coping and social support processes, the model was organized in such a manner as to represent these three concepts and to emphasize their utility in explaining various aspects of the sport injury experience.

The discussion of the study findings will follow the same sequence as outlined by the sport injury process model and will serve as a means of highlighting the major findings which emerged from the study and assessing their relationship to research discussed in the review of literature. As mentioned earlier, since the Wiese-Bjornstal et al. (1995) model of the psychological response to injury and rehabilitation represents an amalgamation of current research in the area, it will serve as a basis for comparing findings from the present study and the resultant model. Study strengths and limitations will be addressed throughout the discussion and suggestions for future research will be made. Finally, as a means of summarizing the practical

implications arising from the study, the chapter will conclude with recommendations to support providers.

It must be pointed out that while a distinction between the psychological processes relative to the occurrence of injury and those pertaining to the rehabilitation process has been made in the present study, with the exception of Rose and Jevne (1993), discussions in the literature tend to view the two phases as one. Therefore, a certain degree of caution must be exercised when making cross-comparisons. Nonetheless, there is a great deal which can be learned from discerning the fit between the results obtained across studies, for it serves to outline similarities while highlighting the particularities of the populations being investigated.

Injury Phase

Although the study set out to investigate the role of social support in recovery from sport injury, a substantial amount of data describing the occurrence of injury and its psychological impact on the skiers was generated from the interviews. It was evident that this information was pertinent to the athletes' overall functioning in rehabilitation and that, without it, an understanding of the athletes' experiences would be compromised. Thus, in the injury phase, an effort was made to identify the psychological impact of injury and the various factors influencing these responses. In line with cognitive theory which maintains that thought processes influence emotional responses to injury, the psychological impact of injury was separated according to cognitive and emotional responses. Although it is acknowledged that cognitive and emotional responses were global factors present throughout the entire injury experience, they were included in the initial phase as a means of identifying factors which were immediately present and which persisted throughout the process.

Despite the recognition that the response to injury represents a combination of cognitive and emotional factors, studies investigating the psychological impact of sport injury have tended to focus exclusively on measuring emotional responses (McDonald & Hardy, 1990; Smith et al., 1993) and behavioral outcome variables such as treatment adherence (Fisher et al., 1988). In terms of cognitive responses, much of the work done centres on cognitive processes (Gordon, 1986) and information on actual thoughts in response to injury is scant. Thus, it is difficult to assess whether or not the concerns voiced by the athletes in the present study were unique to the sport of skiing or skiing at an elite level. In terms of the appropriateness of responses, with few exceptions, the cognitive distortions described by Beck and colleagues (1979) appeared to have been absent or, at the least, very minimal in the present study.

With respect to emotional responses to sport injury, the findings which emerged from the present study were similar to what previous authors (Brewer, 1994; Smith et al., 1995) have reported in that there were individual differences among the athletes regarding the degree of emotional disturbance experienced in response to injury. Indeed, some of the skiers were able to take the injury in stride, while others showed a considerable amount of emotional disturbance. Despite the range of responses reported, it was clear that sport injury was an unwelcome and undesirable event.

Since the majority of studies addressing the psychological impact of sport injury have relied almost exclusively on the use of the POMS, it is difficult to compare the emotional responses of the athletes interviewed to those of previous samples for a number of reasons. Firstly, the POMS batteries were administered at the time of injury and throughout rehabilitation, whereas accounts of emotional disturbance in the present study were retrospective. Also the

POMS is comprised of items intended to reflect emotional states, whereas the skiers were describing their feelings using their own words. Thus, although the athletes in the present study reported feelings of depression and frustration, for example, these may not necessarily have been congruent with depression and frustration as measured by the POMS scale.

One of the explanations offered in the literature to account for the psychological impact of sport injury centres on the notion that injury represented a form of loss. This point of view, as described by Thomas and Rintala (1989), seemed particularly applicable in the case of the athlete who had sustained a career-ending injury but not to the rest of the athletes. This raises the question of whether the sense of loss experienced is more appropriately attributed to the phenomenon of career transition rather than sport injury. This is an interesting point to bear in mind with respect to participant selection in studies of sport injury, as career-ending injuries may entail issues which could confound study results.

Stress and coping theorists (Lazarus & Folkman, 1984) viewed injury as a stressor rather than a loss and claimed that emotional and behavioral responses to events were determined by considering the coping demands posed by the injury and the resources available to deal with or manage the situation. Demands and resources were said to occur at a personal level and an environmental level. This position was reflected in the authors' model of stress and coping. In line with this model, it was found that the athletes' responses to injury in the present study were mediated by an interaction of personal and situational variables.

Wiese-Bjornstal and colleagues (1995) also based their model of the psychological response to athletic injury and rehabilitation on the stress and coping model and listed the factors believed to influence the stress response. Because these researchers represented the occurrence

of injury and the process of rehabilitation as a unitary concept, their model was organized differently than the one which emerged from the current study. However, although the models differ representationally, as will be demonstrated throughout the discussion, they are conceptually very similar.

In terms of personal mediators, two classes were noted among the skiers: injury characteristics and injury history. Although injury severity and injury type are represented in both the Wiese-Bjornstal et al. model and the model which emerged in the present study, there are some differences in terms of how they have been operationalized. For instance, the severity of an injury is typically defined according to its duration (Smith et al., 1990). However, in the present study, it was found that in addition to the length of recovery, the athletes assessed the seriousness of their injuries in terms of chances for full recovery, i.e., being able to compete at preinjury levels, and not necessarily on the basis of recovery length. This raises an important issue with respect to measuring injury severity solely on the basis of absence from sport only. The present study indicates that considerations of prognoses reveal valuable information.

Wiese-Bjornstal and colleagues (1995) accounted for this possible confound by proposing that injury type be defined in terms of acute, chronic, overuse and career-ending injuries. In the present study, however, the data indicated that it was more appropriate to distinguish injuries according to whether or not they were common to the sport of skiing since this affected the availability of relevant medical information and certainty about recovery. For example, knee injuries which were common to skiing were marked by high degree of successful recovery. Furthermore, because they were common, there were many examples to draw upon regarding

information about rehabilitation time lines and the possibility for success in sport following recovery.

Although the varying definitions raise some important considerations with respect to the assumed significance of these variables, it must be remembered that all of the athletes interviewed in the present study had sustained serious injuries resulting in a substantial absence from skiing. It is possible, therefore, that with a more varied sample, the Wiese-Bjornstal et al. operationalizations would be more appropriate. Nonetheless, it was clear that the underlying factor with regard to injury severity and injury type which influenced the psychological response of the skiers was chances for full recovery.

Another interesting difference between the two models was that in the Wiese et al. (1995) model, injury history referred to experience with injury and was subsumed under the category of injury characteristics. However, the data from the present study revealed findings pertaining to the athletes' experience with injuries which suggested that injury history should be considered as a separate category. Also, by specifying which aspects of experience with injury were influential, a better understanding of the impact of this variable on the response to injury was achieved.

Two noteworthy findings emerged. First, personal experience with injury was advantageous in that it provided the athletes with knowledge which could be helpful with respect to future injuries. This was in line with Shaffer's (1992) finding that participants who had sustained a prior injury felt more confident in their abilities to perform physiotherapy than those who had the same injury but without prior experience. However, it was also found in the present study, that experience with injury was burdensome in that athletes found that it grew more and

more difficult to rebuild one's confidence with each additional injury.

Another remarkable finding which emerged concerned preparation for the occurrence of injury. This variable, which has not been identified elsewhere, was included in the injury history category because it was viewed as a condition which predisposed the athletes to respond to injury in a given manner. It was found that participation in a high risk sport in which injuries were common enabled the athletes to expect and accept that they could eventually get injured. In other words, accepting the risks inherent in their sport allowed them to be mentally prepared for injury. Again, it must be pointed out that although expectancy may have prepared the athletes for injury, confidence in full recovery had a greater influence on coping ability. Also, the frustration experienced in response to sustaining a number of injuries indicated that the athletes were prepared to deal with one injury but not several.

In terms of situational variables, it was found that injuries occurring in preparation for or during the Olympics heightened the impact of injury. A similar finding was noted by Gordon et al. (1991) who reported that according to physiotherapists, the occurrence of injuries just before a competition was rated as an important determinant of the emotional response observed among the athletes they treated. With respect to team standing, Wiese-Bjornstal et al. (1995) mentioned that this variable had received little attention in the literature and ventured that the effects of injury on athletes with important roles on their teams might be more emotionally disruptive.

In the present study, however, it was found that in comparison to marquee athletes, injured up-and-comers had the added worry of possibly losing their position on the team. In addition, marquee athletes tended to receive more support from the team than did up-and-comers. An important point to bear in mind is that skiing is an unusual sport in the sense that it is an

individual event within a team environment and the absence of a skier doesn't affect the team's performance as it would in hockey, for example. Thus, the issue of role on the team may not be relevant and the present findings should not be taken as a refutation of the hypothesis advanced by Wiese-Bjornstal et al. (1995).

Several important factors concerning the quality and availability of medical information emerged from the present study. First, it was clear that accurate information was an important factor influencing the psychological adjustment to sport injury in that it allowed the athletes to plan for and anticipate future events. In the extreme case of the athlete with a career-ending injury, not knowing what was in store for the future was particularly upsetting. Since the athletes based their expectations for recovery on the information given both at the time of injury and throughout the rehabilitation process, it was imperative that the information be complete and athlete-specific. For example, there was a tendency among the athletes interviewed to undercut time lines given if they felt that recommendations were based on the general population.

It was also found that withholding information from athletes had a negative effect because it led to false hopes and erroneous expectations. Rather it was preferred that doctors be forthright about the diagnosis and prognosis, while avoiding absolutistic statements, i.e. telling athletes they'll never walk again, and that this information be presented in a positive light. The impact of the treatment team on the athletes was acknowledged by Fisher (1990) and is discussed in the rehabilitation phase.

A situational mediator not included in the Wiese-Bjornstal et al. (1995) model which was present in the current study concerned received social support. For purposes of comparison, the support types were classified according to the taxonomy proposed by Hardy and Crace (1991). It

was found that, at the time of injury, the athletes obtained support from two distinct support groups: the ski team and the home network. At the time of injury, athletes received informational support or what they referred to as “moral support” from coaches and teammates. Coaches and teammates also assisted with practical matters to get the injured athletes ready to fly home for treatment. The team management handled other practical matters such as getting the athletes airline tickets and arranging for medical care. Emotional support was received from members of the home network which included family and friends and the athletes pointed out that the type of support needed from intimates was listening support as the athletes worked through their emotions.

The athletes also mentioned that, although they knew the intention was to be helpful, too much support could be suffocating. Another point was raised concerning misconceptions about the type of support needed. As the following athlete explained, support providers often gave what they believed was needed rather than being open to what the athlete really needed:

People when they try to make you feel good when you're injured.... they think by making you feel good every time but not listening to your needs that you're happy, but you're suffering. (A10)

This finding was typical of a phenomenon described by Dunkel-Schetter and Wortman (1982) who explained that support behaviors were sometimes ineffective because support givers could be motivated by the commonly held belief that it is better for sufferers to be optimistic and cheerful than to discuss the negative aspects of their predicament.

In summary, the findings from the present study pertaining to the injury phase support previous findings which indicated that the psychological response to injury is mediated by an interaction of personal and situational factors which vary across individuals. It was found that

most of the factors listed had the potential to act as both stressors and coping resources. In the rehabilitation and return to sport phases, the distinction between stressors and coping resources was made in order to highlight the cognitive appraisal process and its relationship to the coping strategies used by the athletes.

Finally, where other models of the psychological response to sport injury (Grove & Gordon, 1992; Wiese-Bjornstal et al., 1995) have assumed a direct link between injury and rehabilitation, the findings from the present study revealed that the transition was marked by a decisional process in which three interrelated factors influenced whether or not athletes sought treatment. The factors included injury severity, importance of the competition and world ranking. An interesting form of denial noted among the athletes was that despite the acknowledgement that an athlete had to be in top form to win an Olympic race, the athletes went ahead and skied the race if this was physically possible. Not only did the athletes run the risk of not doing well, they ran the risk of further injury. Indeed, in all cases, where the athletes decided to ski injured, poor performance or further injury ensued. In their discussion of psychosocial processes associated with sport injury, Rose and Jevne (1993) spoke of running the risks as a major theme which ran throughout the entire injury process. However, they did not discuss the factors which contributed to the risk-taking behavior observed in their study.

Both the present study and the Rose and Jevne study, which included a sample of athletes involved in running and field sports, raise some interesting points for future consideration. For example, what is the relationship between the amount of risk involved in an athlete's sport and their willingness to gamble with their health? Furthermore, how is risk-taking to be measured? Although skiing may be considered a higher risk sport than running, the Rose and Jevne study

suggested that it may have been the athlete's perception of risk which was of significance. Also, there is the possibility that the risk-taking behavior is motivated by the perception of what it takes to be an "athlete". Thus, the higher the level of involvement or investment in sport, the more likely an athlete will engage in risk-taking behavior. From a practical perspective, insight into these issues can contribute to the development of interventions aimed at assisting athletes with decision-making processes which, as Heil (1993) suggested, may be compromised during times of stress.

Rehabilitation Phase

The rehabilitation phase refers to the period beginning with treatment and ending with recovery or the return to sport. As mentioned earlier, the process model which emerged from the present study differs from the Wiese-Bjornstal et al. (1995) model representationally but not conceptually. Whereas, Wiese-Bjornstal et al. acknowledged that the stress response was determined by an assessment of demands and coping resources, the process model which emerged from the present study went a step further by distinguishing among stressors and resources and demonstrating the link between cognitive appraisals and coping strategies. Also, as with the Wiese-Bjornstal et al. model, an ongoing loop was established between coping strategies and their outcome as measured by progress in rehabilitation. Information received from this component served as an index of the effectiveness of coping strategies and determined whether and how they were to be altered.

Throughout the course of their recovery, the athletes in the present study encountered a number of situations which required that coping resources be accessed in order to manage the problem. The stressors occurred on five levels: physical, cognitive, emotional, social and

medical, and as is shown in Table 4 were similar to those identified by Heil (1993). It is important to note that this table refers to the possible range of stressors an athlete may encounter when injured and, as Heil (1993) pointed out, not all athletes experience the same stressors nor will they experience them with the same intensity. The same was noted among the athletes in the current study; there were variations regarding the number of and combination of both personal and environmental stressors faced by each athlete.

These differences in the number of stressors encountered could, in part, account for observed individual differences in response to sport injury reported in the literature (Brewer, 1994; Pargman, 1993; Smith et al. 1995). For instance, although there are a number of stressors one can assume as being directly associated with the event of injury, the present study indicated that there were a number of residual stressors which served to exacerbate the athletes' circumstances. Future studies addressing the psychological impact of sport injury would be well advised to also consider the minor annoyances with which injured athletes have to cope, for, although they may seem insignificant, as Lazarus and Folkman (1984) pointed out, they served to increase the demands posed on one's coping resources. Indeed, when asked to describe the most difficult aspect of being injured, some of the skiers in the present study mentioned having to arrange for transportation or having to complete insurance forms.

Folkman and Lazarus (1984) explained that the relative importance of a stressor was determined by a cognitive appraisal process in which the estimated demands of a situation were measured against personal and social resources. The results of the appraisal subsequently determined which coping efforts were to be invoked in order to regulate emotions and manage the problem. The appropriateness of stress and coping theory in explaining the psychological

Table 4
Comparison of the stresses of injury identified by Heil (1993) and found in the present study

Stressor type	Stresses of injury	
	Heil (1993)	Present study
Physical	physical injury pain of injury physical rigors of treatment temporary physical restriction permanent physical changes	injury-related symptoms (included above) physical demands of rehabilitation restricted physical activity (discussed w/career-ending injury)
Emotional	psychological trauma of injury feelings of loss and grief	managing negative emotions (included above)
Cognitive	emotional demands of treatment threats to future performance threats to life goals and values decision making under stress threats to self-concept	motivational demands of rehabilitation concerns about time lost concerns about team status (discussed during transitions) -----
Social	separation from teammates loss of important social roles necessity of depending on others -----	isolation ----- (discussed w/restricted activity) lack of support CAST/others
Medical	new relationships with treatment providers necessity of depending on others ----- ----- -----	----- ----- ----- inaccessibility of services lack of personal attention poor quality of information

Note. Heil did not necessarily use the same category labels as above. Refer to Figure 5, p.48 of this thesis to consult Heil's classification system. Also, ----- indicates that a corresponding stressor was not noted.

impact of sport injury in the present study was unquestionable. Although cognitive appraisals are an assumed phenomenon, it was clear that the athletes drew on a number of resources to help them cope with the stresses of injury and rehabilitation.

Folkman et al. (1991) contended that coping processes were influenced by characteristics of the individual and environmental factors. It was clear in the present study that the athletes benefitted from a combination of personal, social and environmental resources. At the core of the process were the athletes' personal resources which Wiese-Bjornstal et al. (1995) referred to as moderator variables or antecedant conditions. As mentioned earlier, experience with injury was viewed as facilitative with respect to coping. More importantly, however, were the athletes' mental skills which, in essence, laid the foundation for how the remaining resources were to be viewed and how the entire situation was to be appraised. Furthermore, the athletes' level of mental skill affected the effectiveness of coping strategies used.

As Folkman et al. (1991) explained, there were two types of coping behaviors an individual used to deal with a stressful situation: problem-focused and emotion-focused coping. Problem-focused coping prevailed in situations which were appraised as amenable to change, whereas situations not amenable to change required the mobilization of emotion-focused forms of coping such as cognitive reframing and positive self-talk in order to change the meaning of the situation. Both these types of coping behaviors were noted among the coping strategies used by the athletes in the current study. However, since sport injury was marked by many aspects which were unchangeable, the majority of the coping efforts used by the athletes were emotion-focused, i.e., accepting the injury, believing in recovery and staying positive.

Indeed, it was found that the athletes who coped most effectively with their circumstances

were those who were able to consistently maintain a positive perspective throughout the course of recovery and who shared a strong commitment to returning to skiing. In addition, these were athletes who confirmed that they had used a number of mental strategies in their sport such as cognitive restructuring and performance imagery. In discussing their approach to skiing, the athletes mentioned that they did not spend time worrying about poor performances. Rather, they tried to learn from their mistakes and focus their energies on the next race. The same response pattern was evident in their approach to rehabilitation in that they did not spend a lot of time ruminating about their circumstances. Instead they focused on getting better and adopted an action-oriented approach to recovery very similar to what Heil (1993) referred to as determined coping, which was characterized by the purposeful use of coping resources to work through the process of recovery. In the present study, athletes used the coping resources to help them cope with the emotional and the practical stresses of injury.

It is interesting to note that one athlete who found it particularly difficult to remain motivated in rehabilitation also admitted to struggling with mental skills in sport. This athlete, who was viewed by others as having a bad attitude, also had difficulty maintaining a positive perspective. These findings raise a number of salient points with respect to the transferability of mental training skills developed through sport. With the exception of the athletes who consulted a sport psychologist, none of the athletes received psychological interventions during their recovery. Thus, the cognitive strategies adopted in rehabilitation were self-initiated and appeared to be adaptations of skills used in sport.

Ievleva and Orlick (1991) noted a similar finding in which they reported that athletes who healed faster had used strategies such as positive self-talk, goal-setting and mental imagery

during their recovery. The transfer of mental skills from sport to rehabilitation was also addressed by Heil (1993). Thus, there is evidence to suggest that in addition to benefitting athletes in their sport, the development of mental skills also enhances coping ability when recovering from sports injuries. In fact, one can reason that, over time, the mental skills developed through sport become an ingrained behavioral response pattern to any stressful situation. This proposition presents an interesting research avenue.

Another point which cannot be ignored is that the athletes who had a positive disposition throughout recovery indicated that they were generally very positive people and had been throughout their lives. Thus, there is the influence of personality to consider with respect to coping effectiveness. Indeed the relationship between coping ability and personality variables such as hardiness and attributional style has been noted by a number of authors (Antonovsky, 1979; Beck et al., 1979). In summary, it would seem that the ability to cope effectively with a stressful situation is a skill which is developed over a substantial period of time. This is an important point to consider with respect to developing psychological interventions in rehabilitation from sport injury. In other words, the athlete's prior level of mental ability must be taken into consideration so that both the athlete's and the practitioner's expectations with regards to the success of the intervention fall within reasonable limits.

Results from the present study also indicated that there were a number of social resources which contributed to the athletes' ability to cope effectively with the numerous stressors encountered. While some served to reduce the impact of physical stressors, the greatest benefit was obtained from resources which served to reduce the impact of cognitive and emotional stressors. For example, as indicated in Table 4, the athletes had a number of concerns

related to the length of their absence from skiing. In some cases, the team management and coaches played a significant role in alleviating the athletes' concerns by reassuring them that they would be given the time needed to recover and that their position on the team was not in jeopardy. As one athlete put it:

I couldn't have done it without that. As long as I had that support from the team, that made it a lot easier for me. (A2)

This type of support which was labeled "freedom from pressure" was especially pertinent for the athletes who faced lengthy recoveries as a result of illness. Support from CAST was also an issue for up-and-comers who had not yet proven themselves and who were, therefore, under criteria to obtain a satisfactory result within a given period.

Although, the Hardy and Crace (1991) taxonomy offered a variety of support types, it was found that because they centred on resources which were given, none was appropriate to describing a situation in which something was removed. Thus, in order to capture the essence of the phenomenon described above, a new category of social support was created. Of course, it can be argued that "freedom from pressure" actually represented the removal of a stressor rather than the offering of support. However, the manner in which these circumstances were described in the interviews indicated that the team management's actions were more aptly deemed support behaviors. CAST also offered tangible assistance by ensuring that athletes were receiving the best possible treatment. It was noted that these efforts made the athletes feel that they were important to the team and was motivational in that it increased their level of self-confidence and confidence in recovery.

It must be pointed out, however, that support from CAST was not always forthcoming and a number of athletes felt like they were left on their own to "get better and return". This had the effect of leaving the athletes feeling that the team management only cared about them when they were healthy and the feeling of being abandoned by CAST became a stressor. As Dunkel-Schetter and Bennett (1990) explained, satisfaction with support received was influenced by a number of factors, including expectations for support. Thus, when support received was less than what was expected, satisfaction decreased. By the same token, when support exceeded expectations, satisfaction increased. Indeed, the athletes who were dissatisfied with CAST confirmed that they had expected to be better taken care of by the team management.

An extreme example of discrepancy between expectations for support and the failure to offer support was the case of the athlete who was dropped from the team while injured. In addition to "taking a big whack" out of the athlete's self-confidence, losing team status had a domino effect in that financial privileges associated with being a member of a national team were also affected. Thus, the athlete had the additional stressor of economic burdens to contend with.

The Dunkel-Schetter and Bennett (1990) proposition was also relevant with respect to support received from coaches and, again, this represented a discrepancy between expected and received support. Only this time it was in the positive direction. For example, despite the minimal contact they had with coaches during their down time, the skiers reported that they were satisfied with the level of support received from their coaches. In fact, as the athletes explained, the coach's job was to produce champions, not look after injured athletes. Therefore, they did not expect to hear from their coaches and when they did, they were pleasantly surprised and impressed by the coaches efforts. In fact, it was apparent that the unexpectedness contributed to

a feeling of being special and served to heighten the fact that the coaches cared about the athletes.

There were some cases, however, where athletes felt that the amount of contact with coaches was insufficient and in one case, an athlete mentioned that hearing from coaches had a negative impact. The athlete shared a performance-based relationship with the coach and felt that the coach was a resource person only insofar as technically related matters were concerned and, therefore, could not be of assistance off the ski hill. It is important to note that the athletes who spoke of dissatisfaction with the coaches' involvement admitted that they did not share a very good relationship with their coaches. This is in agreement with Dunkel-Schetter and Bennett's (1990) finding that the quality of a relationship was an important predictor variable in terms of the satisfaction with received support and in terms of what kind of support was expected from whom.

For the most part, however, support from coaches had a favorable impact on the athletes and in some cases was instrumental in keeping athletes from quitting skiing. In terms of the content of the exchanges, it appeared that the coaches offered a mixture of emotional and informational support. This is in line with Rosenfeld et al.'s (1989) finding that coaches were an important source of social support during recovery and that the type of support offered included emotional and informational support. Whereas coaches were found to be a source of shared social reality in the present study, Rosenfeld et al. reported that shared social reality was provided primarily by friends. Since it is not clear what was meant by primarily, it is possible that coaches were also included in this category but to a lesser extent than friends.

Sarason, Sarason, and Pierce (1990b) contended that the value of a supportive act lay in

what it conveyed about the relationship or the recipient. In the present study, it was clear that contact with coaches communicated to the athletes that they were cared for and were valued members of the team and that the coaches had confidence in the athletes' ability to recover fully. Again, this had a motivational effect on the athletes in that it contributed to a higher sense of self-confidence and served to reduce feelings of isolation from the team and the sport. It was clear in the present study that confidence in the ability to recover was the key motivational factor for the athletes. Thus, social resources which enhanced the athletes' sense of self-confidence were greatly influential. These findings lend support to Fisher's (1990) assertion that self-confidence was the key to rehabilitation adherence and this was clearly the case in the present study.

Another group which the athletes did not expect to have contact with were teammates since they were often on the competition circuit. Nonetheless, hearing from them was appreciated and it seemed that the contact was more frequent among teammates who shared a more intimate bond, i.e., friendship. The athletes also spoke about receiving visits and telephone calls from former team members and how this was very encouraging, particularly since most of them had sustained injuries in the past and were, therefore, able to relate information that was helpful, such as how they dealt with it. This also had the effect of motivating the athletes and reducing feelings of isolation.

In terms of the home support network, it was mentioned that family and friends were the primary sources of emotional support and that the type of emotional support most desired from them was what the athletes referred to as "unconditional support", or to use Hardy and Crace's (1991) equivalent, listening support. As mentioned earlier, this was especially helpful in the

early stages which were a period marked by emotional disorganization and confusion. However, it was also helpful when athletes encountered complications with their recovery. Family and friends were also sources of informational and tangible support. With the exception of one, all of the athletes interviewed indicated that they had a very supportive home network and that most of the support came from individuals with whom they shared an intimate bond. Indeed, Coyne et al. (1990) acknowledged that the more intimate the relationship, the more support was expected.

The ability to offer support, however, was influenced by the support giver's competence (Dunkel-Schetter & Wortman, 1982) and as Cutrona and Russell (1990) stated, an ability to match the needs engendered by a given situation. In other words, certain events required specific types of support and in order for support to be effective, it had to meet the needs particular to those events. As a result, the normal support provider may not necessarily be the person who can offer support during such instances. This was observed in the present study in the case of the skier who had sustained a career-ending injury. The athlete discussed how the impact of the injury was so significant that the only people who could offer comfort were those who had experienced the same or who were able to appreciate the sense of loss the athlete was experiencing. Thus, the athlete's life partner, who was usually turned to for support, could not meet the athlete's needs in this particular instance. The athlete, however, was fortunate enough to share a special relationship with the physiotherapist whom the athlete had known for a long time and who came to be the athlete's main source of emotional support throughout a very difficult period.

In fact, most of the athletes spoke very favorably of their physiotherapists; they found them to be very friendly, positive and accommodating. Fisher (1990) wrote about the impact that

the physiotherapists' attitude had on the athletes they were treating and found that motivational levels were higher among athletes who worked with physiotherapists who had a positive attitude. This was confirmed in the present study and the skiers indicated that they preferred to work with physiotherapists who shared in their goals to return to competition, and who were willing to do extra work to ensure it happened.

This finding also confirms the transactional view of social support (Sarason, Sarason & Pierce, 1990b) which holds that the support interaction is influenced by characteristics of both the support giver and the support recipient, i.e., self-presentational style. Silver et al. (1990) proposed that when faced with a stressor, individuals adopted a particular coping style and that this coping style was an important determinant of the support received. According to the authors, people who appeared to cope well would generate positive responses from those around them because it reduced feelings of discomfort in the support givers. In other words, the support giver was not responsible for providing a solution to the distress. The most effective self-presentational style with respect to soliciting support was a balanced coping style in which individuals showed signs of distress accompanied by attempts to deal with the situation.

Thus, it is possible that the physiotherapists willingness to go out of their way to assist the skiers was motivated by the fact that the athletes coped very well with their circumstances and were very keen in physiotherapy. In fact, the athletes in the study adopted an action-oriented approach to their recovery and displayed a balanced coping style. This probably relieved the physiotherapists' task of convincing the athletes to comply with their programs. This proposition is supported by Ford and Gordon's (1993) study in which they reported that physiotherapists preferred to work with athletes who displayed a balanced coping style. A further example of the

effect of self-presentational style on the support interactions was the case of the athlete who had difficulty coping with complications encountered in recovery. This athlete grew irritable and argumentative and as a result, relations with medical staff were strained.

Another possibility to consider regarding the attitude of physiotherapists was the fact that they were treating elite athletes and, in some cases, Olympians. Thus, the physiotherapists may have had a personal investment in getting a champion back on the hill, so to speak. Indeed, some athletes acknowledged having received privileged treatment as a result of their elite status. Regardless of their motivation, it was clear that the physiotherapists were key support providers during the athletes' recovery and that the attention received kept the athletes motivated and increased their confidence in the treatment protocol, thereby reducing their recovery concerns.

In terms of social support received from sport psychologists, some interesting findings were noted. For example, although a number of athletes had worked with sport psychologists in their sport, few athletes made use of their services during their recovery. There seemed to be a pervasive feeling that there wasn't much the sport psychologists could do to help the athletes with what the athletes viewed as a physical problem. Although the athletes recognized that the physical injury entailed psychological phenomena such as lowered self-confidence, they felt that the only way to rebuild that confidence was through physical recovery. Of course there is also the possibility that the athletes felt they were fully aware of and proficient in mental skills such as positive self-talk, goal-setting and imagery, and that the assistance of a sport psychologist was therefore, not needed. These athletes seemed to gain more from talking with other injured or previously injured athletes as a means of practical advice and encouragement.

Among the athletes who did seek consultation, not everyone felt it was helpful. Some

mentioned how they were advised to do mental imagery and that they did so for the first few days and then stopped. As it turned out, the athletes were advised to do performance imagery and they felt that this type of imagery was more relevant toward the return to sport than early on in the rehabilitation stage. Other athletes, however, were very pleased with the interventions and felt that sport psychologists had a lot to offer in terms of helping athletes cope with the stresses of injury. These findings raise two important points. First, they suggest that there is a place for sport psychology in recovery from sport injury but that the interventions offered have to be suited to the rehabilitation setting. This requires that the sport psychology practitioners be familiar with the psychosocial aspects of sport injury and that they take the time to listen to the athletes needs so that relevant and useful advice can be offered. Also, athletes need to be made aware of the types of services available them and how these interventions can be of benefit. Again, this has to do with the optimal match between the needs engendered by a given situation and the support offered as described by Cutrona and Russell (1990).

In addition to personal and social resources, the athletes' motivational level and confidence in recovery were also affected by factors related to the rehabilitation environment. For example, it was found that the skiers preferred to work in an athletic rehabilitation environment because it gave them a chance to interact with people with whom they could identify, ie. other injured athletes. In addition to reducing feelings of isolation, the social and motivational benefits gained from sharing experiences and challenging each other was mentioned by the skiers. Working in an athletic environment also enhanced the athletes' confidence in the competence of the treatment team. They were reassured that these were individuals who had expertise in treating athletes and as pointed out throughout this discussion, the athletes' ability to

cope with injury and remain motivated in rehabilitation was greatly influenced by their confidence in recovery. Indeed, Duda et al. (1989) reported that belief in treatment efficacy was an indication of good treatment adherence.

In terms of personal qualities, the athletes greatly appreciated doctors and physiotherapists who had a positive attitude and an understanding of the "athlete mentality". As the athletes explained, this included an appreciation for their eagerness to return to competition as soon as possible and a recognition of their willingness to do whatever was necessary to make this happen. It was clear from the interviews that the athletes wanted aggressive treatment plans and they wanted to be working on them as soon as possible. Although this was generally an effective coping strategy, there were instances where athletes overdid it and approached physiotherapy too aggressively. For example, in trying to build up one muscle, an athlete damaged another. Thus, part of understanding the athlete mentality involved recognizing the athletes' tendency to view rehabilitation as another challenge and to engage in overcompliance. In fact, one athlete admitted to seeing several physiotherapists at once in order to speed up recovery.

Another aspect of appreciating the athlete mentality had to do with the type of information given to the athletes throughout the course of their rehabilitation. As mentioned earlier, it was imperative that the recommendations made to athletes regarding prognosis be athlete-specific and that this be explicitly stated. Otherwise, as was seen in the study, athletes assumed that the medical advice was based on the general population and came up with their own recovery time lines. For instance, if told that recovering from a knee injury typically took six months, the athletes would undercut the time frame and aim for five months. However, it

was also noted that, even when aware that the information given was athlete-specific, some athletes were determined to outdo all previously set time lines. In other words, they were going to be the exceptions to the rule. Thus, it would seem that one of the characteristics of the athlete mentality is denying the severity of the injury. This type of behavior has been noted in other studies investigating the psychological responses of injured athletes (Ford & Gordon, 1993; Rose & Jevne, 1993).

The treatment team, therefore, find themselves in a delicate situation; on the one hand, they are expected to provide an aggressive treatment plan and support the athletes' desire to recover as quickly as possible, while at the same time they must monitor the athletes and, if necessary, hold them back to ensure that they don't cause themselves further damage. The need to train physiotherapists in recognizing and managing such behaviors has been recognized by Ford and Gordon (1995). Based on Heil's (1993) recommendations, it was suggested that physiotherapists can assist in the management of overcompliance by helping athletes understand that "smart" rehabilitation is better than more rehabilitation.

In addition to the physical dangers of excessive effort in rehabilitation, it was found that the athletes who set their goals unrealistically were, in fact, setting themselves up for future disappointments when these goals weren't met. As Rose and Jevne (1993) pointed out, athletes sometimes misread these types of outcomes as an indication that more work was required, whereas a better response would have been to readjust recovery goals. This type of behavior was seen with one skier in particular who took pride in being a "fast healer" and who had a tendency to ignore or misread physical signs indicating that rest was in order.

Gordon et al. (1991) pointed out that behavioral outcomes in rehabilitation were

indicators of the athletes' psychological adjustment to the stresses of sport injury. It is interesting to note, however, that studies addressing these behavioral outcomes (Duda et al. 1989; Fisher & Hoisington, 1993) focus on treatment non-adherence as an indicator of poor adjustment and the issue of overadherence remains barely acknowledged. Another important point to consider with respect to studies of treatment adherence is that compliance was typically measured in terms of attendance at rehabilitation (Fisher et al. 1988). Thus, skipping rehabilitation was viewed as an indication of poor psychological adjustment. However, one of the coping strategies noted in the present study was taking a break from rehabilitation. In fact, rather than being an indication of poor adjustment, taking a break came across as being a sign of positive adjustment. In recognizing the need for both a physical and a mental break and allowing themselves the time off, the athletes were able to approach rehabilitation with a renewed enthusiasm.

This should not be taken to imply, however, that all instances of non-compliance are to be considered healthy. In fact, there was one athlete whose cognitive and emotional distress were clearly manifested by a lack of motivation and poor treatment adherence. Rather, the point to be made is that when considered in isolation, measures of attendance at rehabilitation may be insufficient indices of poor psychological adjustment among injured athletes.

In discussing the development of rehabilitation programs which catered to the needs of injured athletes, Heil (1993) suggested that these programs should be goal-oriented, time-limited and that they should place the athletes in an active skill-based role. It was also felt that a comprehensive treatment approach should incorporate: education, social support, goal-setting, and mental training, i.e., positive self-talk and visualization. Indeed, such a rehabilitation program would foster a sense of control over the situation and encourage the use of emotion-

focused and problem-focused coping skills.

The findings from the present study support this kind of treatment approach. It was clear that in addition to adopting strategies to take mental control of the situation, i.e. accepting responsibility for rehabilitation, the athletes also engaged in a number of problem-focused activities, including learning about injury, seeking alternate treatment methods and doing healing and performance imagery. The following athlete described the sense of satisfaction gained from taking an active skill-based role in recovery:

I felt like I was doing everything I could be doing. If I sat around and just kind of waited for things to happen, I wouldn't feel good about that. I would be thinking I'm not doing my job because I have to get myself healthy as fast as possible.
(A1)

The athletes in the present study evaluated the effectiveness of their coping efforts in terms of the progress made in rehabilitation and this information was used to guide further coping efforts. Based on the athletes' expectations, these outcomes had the potential to increase or reduce the stressfulness of the situation. Hobfoll's (1988) conservation of resources (COR) model seems particularly appropriate in explaining the impact of the feedback on progress and performance. According to the COR model, stress was simply a matter of gain and losses of resources and people were centrally concerned with conserving their resources. Thus, in terms of the present study, progress in rehabilitation was an indication of the return on resources invested. However, as Hobfoll explained, conservation of resources could be enhanced by maintaining a flexible appraisal style such that threats were reinterpreted as challenges and less significance was attributed to a resource loss. Thus, in the case of rehabilitation, for example, setbacks and

complications could be viewed as an indication that one is working too hard and ought to slow down rather than feeling that the treatment regimen is inadequate.

In terms of evidence emerging from the present study in support of the COR model, it was found that the athletes who appeared to cope well with their circumstances were those who were obtaining favorable outcomes in rehabilitation. In fact, most of the athletes had smooth recoveries and some found that they were ahead of schedule in terms of forecasted recovery times. The athletes for whom recovery seemed to be a bigger psychological challenge were those who encountered complications and those who had illnesses since they had to contend with a negative return on resources, to use Hobfoll's terminology. These clearly were instances in which the athletes' mental skills were called into question since coping with the setbacks required emotion-focused efforts. Thus, level of mental ability and characteristics of the recovery are important factors to consider when accounting for individual differences with respect to the psychological impact of sport injury.

Finally, as the athletes reached a certain level of recovery in rehabilitation, another transitional point was met in which the athletes decided whether they were fit enough to return to sport or whether further recovery time was warranted. It was found that this decision was influenced by obtaining medical clearance, the athletes' perceptions of their readiness to return, medical clearance, the importance of the competition and pressure from the team. A number of noteworthy findings emerged with respect to these variables. In terms of the type of information received when given medical clearance, the issue of understanding the athlete mentality surfaced, once again. A major point which stood out in the interviews was that the athletes' eagerness to return to competition. Thus, it was imperative for the medical personnel to recognize that unless

given precise information with respect to what they could and could not do in terms of training, the athletes were likely to overdo it, particularly those recovering from first-time injuries.

Another difficulty encountered with first-time injuries was perceived readiness and the expectation that psychological recovery coincided with physical recovery. In other words, the athletes assumed that by being physically ready to return to skiing they were mentally ready as well. However, as was noted, physical recovery often preceded psychological recovery and assuming the two were concurrent left the athletes unprepared for the psychological difficulties met upon return, i.e. fear of reinjury. These findings underscore the necessity to integrate psychological interventions with rehabilitation programs which are primarily physically based. Furthermore, they indicate that the scope of these interventions should extend beyond the rehabilitation setting to issues athletes are likely to face upon the return to sport. Indeed the issues of mental recovery has been discussed by a number of authors (Grove et al., 1990; Heil, 1993).

While some athletes were careful to return when fit, others admitted to having started training too soon. As with the decision to get treated, the decision to return to skiing was heavily influenced by the importance of the competition and again, running the risks prevailed over missing an important event. As one athlete explained, despite the best intentions, skiing injured was sometimes unavoidable:

Sometimes your competitive schedule doesn't coincide with your recovery schedule and you have to do it. And you take that chance sometimes. (A5)

It must be pointed out that all of the athletes who returned to skiing when still injured encountered a series of difficulties, including poor performances and in some cases, reinjury.

Clearly, as with the decision to get treated, the decision to return to sport was motivated by presumed short-term gains rather than probable long-term consequences. This coupled with a tendency for risk taking poses an interesting challenge for sport psychologists wishing to assist returning athletes with respect to making “smart” decisions, particularly those involved in high risk sports. While some athletes in the present study were able to learn from the examples of other athletes who had skied injured and were unsuccessful, others chose to ignore them or attributed the causes of poor performance or reinjury to external factors. It was evident that a number of athletes had difficulty making the connection between skiing while unfit and reinjury.

In addition to the athletes’ own denial of their compromised physical condition, the willingness of coaches and the team management to let these athletes compete while injured only contributed to the disillusionment. Thus, it would seem that education on making “smart” decisions needs to extend beyond the athletes to the team environment, i.e. the coaches and team management. By fostering an atmosphere which discourages competing when injured, the team may have an impact on the athletes’ willingness to open up to messages about their health and safety.

Return to Sport Phase

Perhaps one of the more noteworthy findings which emerged from the study was the fact that recovery did not end with the return to sport. Rather, the athletes faced a number of stressors during their comeback season as they struggled to regain their mental and physical stamina. Aside from having to contend with the physical rigors of training, the most significant concerns the athletes had upon their return to skiing were fear of reinjury and lowered self-confidence. It was noted that these concerns were more prevalent among the athletes who felt that they had

returned to skiing too soon. As the athletes explained, a much of their confidence was based on physical strength, and although they tried to fool themselves into thinking they were ready to compete, their bodies told them otherwise. The realization that they were not in top physical form contributed to concerns about strength and whether the injured limb could withstand the strain of competition.

As in the rehabilitation phase, the athletes drew on a number of personal and social resources to help them cope with the stresses of the comeback season. The mental skills discussed were similar to those noted in the rehabilitation phase, i.e. maintaining a positive attitude and persevering. However, the athletes also spoke of how having a stable sense of confidence in one's abilities which had been nurtured over a substantial period of time, prior to the injury, made it easier to overcome the drop in confidence experienced as a result of injury. Coaches also played a significant role in helping athletes regain confidence during their comeback season. Again, "freedom from pressure" surfaced as a significant variable with respect to the type of support received from coaches. In addition to providing informational support and doing extra one-on-work with the athletes, the coaches gave the athletes the freedom to work at their own pace and integrate slowly with the team.

By not placing any expectations on the athletes, the coaches communicated their confidence in the athletes's abilities to them. Furthermore, without their coaches support, the athletes coping efforts would have been thwarted. For example, pressuring the athletes to perform would not have allowed them the opportunity to integrate slowly with the team or to take breaks when rest was needed. For the most part, the athletes found their coaches to be very sympathetic to the stresses of injury and supportive of the athletes' efforts to regain their

preinjury level of skiing ability.

Interestingly, although a number of athletes expressed concerns about reinjury, it did not appear to be an issue which they discussed with their coaches. Again, avoidance of the topic may have been guided by misperceptions, on behalf of both the athletes and the coaches, regarding how certain situations ought to be handled. As one athlete explained, as far as fear of reinjury was concerned, athletes were expected to “just deal with it”, which is what they tried to do. Dunkel-Schetter and Wortman (1982) pointed out that topics which could elicit negative emotions such as discomfort and helplessness were typically avoided. Thus, it is possible that the coaches’ behavior may have been motivated by a sense of incompetence, i.e. not knowing how to handle the athletes’ disclosures or what to say to comfort the athletes. Then again, the athletes may have provided no information about distress. According to Silver et al. (1990), individuals who adopted this self-presentational style were attempting to gain admiration by suppressing distress and trying to appear stoic. However, in doing so, they gave the impression that support was not needed. This may have been the case with the athletes and the coaches in the present study given that the athletes were very proud individuals in a very tough sport.

The discomfort with discussing emotional aspects of injury was also noted among teammates who appeared to not know what to say to returning athletes. Indeed, one athlete spoke of the cool reception from fellow skiers upon the return to sport:

Well, it’s weird. You think that because you’ve been away from it for so long that the other athletes are going to be very eager to see you - but they’re not. (A5)

What is striking about these findings is that for a common occurrence, the athletes and coaches didn’t seem particularly adept at dealing with the topic of sport injury. Clearly, both athletes and

coaches could benefit from an educational program aimed at improving communication skills, particularly where uncomfortable topics are concerned. Information regarding self-presentational styles and offering support would also be of value.

It must be pointed out, however, that in addition to the support received from coaches and teammates, the athletes indicated that their biggest boost in confidence came from obtaining good results. However, they also noted the need to readjust one's performance expectations for the first season back since this was a period marked by a series of difficulties. Some athletes suggested that it could take up to one full competitive year following injury to regain one's preinjury level of skiing ability. As was noted in the rehabilitation phase, coping with poor outcomes rested on mobilizing emotion-focused strategies and therefore required a certain level of mental skill. Hobfoll's (1988) COR model was also applicable to the return phase and it was evident that coping well with the disappointments encountered in the comeback season relied on the ability keep things in perspective and minimize the importance attributed to less than optimal performances.

Although there hasn't been much discussion in the literature of the psychological aspects of the return to sport following a serious sport injury, findings from the present study indicate that the process is similar to that encountered during rehabilitation, i.e. an appraisal of stressors and coping resources is followed by a mobilization of coping strategies aimed at managing the stressful event or situation. Thus, the same principles related to stress and coping and social support processes are applicable to understanding the experience of return to sport following injury. With respect to practical applications, this implies that psychological interventions aimed

at assisting athletes cope with the demands of rehabilitation can, with slight modification, easily be transferred to meet the athletes' needs with regards to the return to sport.

Conclusion

The use of a qualitative approach to investigate the role of social support in recovery from sport injury provided an opportunity to gain an in-depth understanding of the experience of sport injury from the perspective of international level ski racers. As a result of the research protocol used, a substantial amount of information was generated in which the athletes shared important insights and lessons which can be of benefit to both injured athletes and support providers. Furthermore, by basing the study on an integration of three major theories of human behavior, the gap between psychology and sport psychology was narrowed and an organizational framework for understanding the influence of social support processes in recovery from sport injury was developed.

The study clearly demonstrated that sport injury was not an event but a dynamic, cyclical process comprised of three distinct phases separated by two important transitions. In an attempt to reflect the complexities of the event, a sport injury process model illustrating the links between psychosocial processes influencing the response to sport injury was developed. The resulting model represents a substantial advance on former models in which cognitive appraisal processes were assumed but not clearly demonstrated. Furthermore, the present model accounts for important decisional processes which separate the phases of injury. Finally, the model is unique in that the return to sport is included as part of the sport injury process. As has been mentioned earlier, recovery continues beyond the rehabilitation setting and well into the comeback season. However, this phase of recovery from sport injury remains barely

acknowledged in the sport injury literature.

The findings which emerged from the study illustrated that social resources contributed significantly to reducing the physical and psychological strains encountered by the athletes. In line with what has been proposed by social support theorists (Hobfoll & Parris Stephens, 1990; Sarason, Sarason, & Pierce, 1990a; 1990b), results from the present study indicated that social support was a valuable resource because it provided a feeling of being cared for, fostered the belief that one was valued, loved and esteemed, and provided a sense of belonging to a reciprocal network. In addition, the social support received had an important influence on the athletes' sense of self-confidence and their motivational levels in rehabilitation and during the comeback season.

As was emphasized throughout the study, the key issue for the athletes, whether it was in rehabilitation or during their return to sport, was confidence in self and in the ability to recover fully. The athletes identified a number of individuals who were instrumental in helping them maintain or regain a sense of self-confidence, including coaches, physiotherapists, and family and friends. Whomever the support provider was, it was clear that the nature of the relationship shared by the athlete and the provider was of significance as was the meaning behind the interaction.

As noted throughout the discussion, a number of interesting issues surfaced over the course of the study and analysis of the interview transcripts. Unfortunately, for logistical reasons, access to the study participants was limited and the opportunity to go back into the field to investigate these issues did not present itself. However, it is hoped that by bringing them to the attention of fellow researchers, they will be considered in future studies.

In closing, a number of important points concerning the provision of social support and factors which contributed favorably to the athletes' recovery were noted and are shared hereunder.

In terms of the treatment setting, the athletes preferred:

- athletic environment
- medical staff w/professional and positive attitude and an appreciation for the 'athlete mentality'

In terms of interactions with and support from key individuals throughout the sport injury process, the recommendations which emerged were the following:

Doctors

- be straightforward about diagnosis and prognosis
- avoid absolutistic statements
- provide an immediate post-operative plan
- give accurate information, i.e., base recovery time lines on athletes and not the general population, and be specific about what athletes can and cannot do upon the return to sport

Physiotherapists

- share in the athletes' recovery goals
- adopt an aggressive treatment plan
- be accommodating and flexible

Coaches

- maintain contact with athletes during down time

- give the athletes the time they need to recover fully
- give athletes the freedom to integrate slowly with the team upon return
- let the athlete know that nothing is expected in terms of performance results during the comeback season
- show confidence in the athletes' abilities

Team management

- offer assistance with obtaining best possible treatment
- support athletes' treatment choices
- maintain contact with athletes during down time
- take an interest in the athletes' recovery
- give the athletes the time they need to recover fully
- do not put pressure on athletes to obtain high performance results during the comeback season.

Family and friends

- give the athletes the time and space needed to work through their feelings
- support the athletes' ideas and feelings without trying to change them

Epilogue

The final point to bear in mind regarding the provision of social support is that it is intended to “..enhance the well-being of the recipient” (Shumaker & Brownell, 1984, p. 13), and, although a number of recommendations have been offered regarding how this can be achieved, the underlying theme echoed throughout the interviews is that social support is about caring; caring enough about individuals to really listen to their needs and to let them know that you are there to help. If you don't care, you're not helping.

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Appendix A - Completed Contact Sheet

CONTACT SHEET

Date: NOVEMBER 5th

Interviewee: ACL 1st injury, 2nd injury same, different knee

Tape number: 01

Researcher: T. B.

Site: KANONASICS 8 yrs on team, Oct for 3

Impression of interview session: - great, lots of good information
- guarded in sharing feelings (personality style as measured in interview)

All questions answered? - relationship stuff was difficult to get a handle on

Impression of athlete's composure: - injuries happened 5 yrs ago, some things difficult to remember
- feelings difficult to articulate

Main points: - Athlete mustn't try to rush rehab.
- look for other alternatives
- don't put pressure on yourself to return to comp.
- 2nd injury - better coping
- team should keep in contact but not put pressure on the athlete.

Issues or questions raised: - role of coach (need education about how to deal w/ injured athletes)
- Sport science needs to be more helpful & involved in putting athletes in touch w/ physio
- Great stuff on recommendations for team involvement
- Let the athlete know what his/her options are

Appendix B - Information Sheet



Université d'Ottawa · University of Ottawa

Faculté des sciences de la santé
École des sciences de l'activité physique

Faculty of Health Sciences
School of Human Kinetics

INFORMATION SHEET

My name is Theresa Bianco and I am a graduate student at the University of Ottawa pursuing a Master's degree in Sport Psychology under the supervision of Terry Orlick, Ph.D. As part of my degree requirements, I am conducting a study entitled **Social Support Influences on Recovery From Sport Injury**. The purpose of this study is to a) better understand the experiences of injured athletes and b) obtain information which can contribute to the development of more effective rehabilitation interventions for injured athletes.

Participation in the study involves meeting with me, the researcher, for an interview which will be tape-recorded and is expected to last anywhere from 60 to 90 minutes. During the interview, you will be asked to discuss your experiences with sport injury. Following our meeting, the interview will be transcribed and mailed to you to confirm the accuracy of statements recorded. Selected excerpts from the transcripts will be included in a research report and may be published. In every instance, strict measures will be taken to ensure that information shared during the interview remains confidential and that your anonymity is maintained. Interview transcripts will be read by me and my supervisor only. Furthermore, your name will not appear on any report or published material.

Please note that even if you agree to participate in this study, you are free to withdraw at any time without fear of reprisal. Should you wish to withdraw after being interviewed, audio cassettes and interview transcripts will be returned to you.

This research has been approved by the Human Research Ethics Committee of the University of Ottawa. The chair of the committee, Dr. F.D. Reardon, may be reached by telephone at (613) 562-5800, ext. 8055, or in writing c/o Office of the Dean, Faculty of Health Sciences, University of Ottawa, 451 Smyth Road, Ottawa, ON K1H 8M5.

Should you have any questions or concerns you wish to discuss, please feel free to contact me at (613) 789-5070, or my supervisor, Dr. Terry Orlick, at (613) 562-5800, ext.4282.

Thank you for your interest in this project!