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THE EFFECT OF COPING STRATEGIES ON NON-ELITE ATHLETE'S ADHERENCE TO THE REHABILITATION PROCESS

Sport Psychology

James Llewellyn-Matthews

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ABSTRACT

The purpose of this study was to gain knowledge about the effect of coping strategies on a non-elite athlete's adherence to the rehabilitation process. Injured non-elite athletes [n=5] who were unable to play sport for at least four to six weeks participated in this study. Three semi-structured interviews took place at injury onset, mid-point of rehabilitation and at the return to sport phase to gain insight into the coping strategies employed by them and their impact on adherence.

The study found that each participant employed coping strategies throughout each phase of the rehabilitation process which helped facilitate adherence. These strategies included social support, self-talk, imagery and goal setting. Each participant used the coping strategy that they as individuals believed was key to help them through each stage of the rehabilitation process.

This study concludes that coping strategies can have a significant influence on the adherence levels of the injured non-elite athlete to their rehabilitation programme in line with Wiese-Bjornstal et al's (1998) model.

CHAPTER I

INTRODUCTION

1.0 INTRODUCTION

Injuries are a natural corollary of taking part in sport. Statistics from existing research demonstrates that the incidence of sports injuries is rising at every level of participation (Conn, Annest and Gilchrist, 2003; O'Connor, Heil, Harmer and Zimmerman, 2005). Participation in sport is also increasing each year. In the UK in 2012, participation in sport amongst people aged sixteen and over who played sport at least once a week increased by 750,000 compared to the year before (GOV.UK, 2015). The corresponding increase in the rate of sports injuries is clearly demonstrated in 2012 by statistics which reveal that Accident and Emergency Departments in England treated 14% more patients with sports related injuries than the previous year (Health & Social Care information Centre, 2012). European statistics indicate similar trends. Data collected over a fourteen-year period between 1996 and 2009 shows an increase of 10% in the number of women who have sustained injuries as a result of rising participation in sport (Bauer and Steiner, 2009). Sports injuries are now a real health concern.

Heil (1993) reports that sports related injuries, whether slight or serious, are a devastating experience on an emotional level. Garrick and Requa (2003) stated that athletic injury more often than not has negative implications for the athlete's physical health. Many rehabilitation programmes focus solely on the physical healing during rehabilitation of the injury to the detriment of the psychological state of the athlete. The problem with this is that when you attend only to the physical part of the injury, this is leaving a part of the athlete effectively untreated (Crossman, 2001). To achieve full recovery of both mind and body, those involved in the rehabilitation programme also need to understand the psychological processes involved with the injury. When rehabilitation practitioners have an awareness of emotional responses to injury, full recovery of both mind and body is more likely and they can take steps to prevent or alleviate negative psychological responses to injury (Pargman, 1999).

A number of theoretical models such as Kubler-Ross's (1969) Grief Model and Andersen and Williams's (1988) Stress Injury Model, were developed in an attempt to comprehend and explain an athlete's cognitive appraisal of the injury. The focus in

this piece of research is on the Wiese-Bjornstal, Smith, Shaffer, & Morrey (1998) Integrated Model of Response to Sport Injury. The reason for this is it tries to explain the psychological processes which connect injury stress, coping responses and rehabilitation adherence. This model "provides an explicit, testable framework to understand the mechanisms by which social cognitive constructs influence the coping procedures of sport injured people" (Lavalle, Thatcher and Jones, 2004, p106). Wiese-Bjornstal et al's (1998) model includes the use of coping strategies to help with adherence and therefore as a result to improve psychological and physical outcomes for the injured athlete.

An intervention that is commonly utilised to achieve psychological healing and to help with adherence to rehabilitation is coping strategies. Coping has been defined as "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of a person" (Lazarus and Folkman, 1984, p. 141). Studies appear to demonstrate that problem-focused coping behaviours like attending to a rehabilitation programme will lessen the damaging psychological impact of the injury (Smith et al, 1990) and are positively correlated to clinical outcomes (Brewer, Van Raalte et al., 2000). Research conducted by Holt and Dunn (2004) suggests that elite sports performers have a series of coping strategies which help them to manage stress and difficulties in their life.

From the outset of the research it was evident that having sustained injury, non-elite athletes more often than not, have limited access during rehabilitation to highly paid specialists (Aubry, Putukian and McCrory, 2009). Whereas, the rehabilitation of injured elite athletes is normally overseen by experts such as sports psychologists who are trained to improve individual responses to injury by educating them about the use of psychological interventions, in the shape of coping strategies, to help recovery.

Research has formerly focused on injured elite athletes. Little attention has been paid to how non-elite athletes cope with injury and on whether they use coping strategies to facilitate adherence. Given the dramatic rise in the number of sports injuries amongst all athletes, this is an important area for research to consider as it may help to identify coping strategies which appear to assist recovery and improve

levels of adherence for this sector. After all, the majority of sportsmen and women are amateurs. Therefore, the aim of this study is to examine the effect that coping strategies have on the adherence of the non-elite injured athlete to the rehabilitation process.

CHAPTER II

REVIEW OF LITERATURE

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

More and more research is being focused on how elite and non-elite athletes cope with and recover from their injuries (Young, 2008; Manuel, Shilt, Curl, Smith, Durant, Lester and Sinal 2002; Louder, 2005) because of the increase in the level of sports injuries sustained worldwide (Conn, Annest and Gilchrist, 2003). This literature review will appraise related research studies which have examined the effectiveness of coping strategies in facilitating adherence to a rehabilitation programme.

This literature review is divided into four sub sections. Each subsection will appraise relevant previous research. The first subsection outlines Wiese-Bjornstal et al's (1998) Integrated Model of Psychological Response to Injury. The reason for focusing on this model is that, "it encompasses personal and situational moderating factors, as well as cognitive, emotional and behavioural responses of athletes to sport injury" (Wiese-Bjornstal et al's, 1998, p. 48).

The next subsection reviews the research on adherence and encompasses both the psychological and physical factors which influence rehabilitation. This section opens with a definition of adherence and goes onto review research on variables which help predict adherence. Also, research on adherence and the emotional response and cognitive appraisal of the injury by the athlete is reviewed. The third topic to focus on will be coping strategies. The initial part of this section sets out an operational definition of coping and goes onto distinguish between two different types of coping. Wiese-Bjornstal's et al's (1998) Model and the Andersen and Williams (1988) Model of Stress and Athletic Injury are then reviewed as both emphasise the importance of coping strategies.

The last subsection will review the literature on coping strategies and how they have been shown to help with adherence to rehabilitation. Three types of coping strategies which are deemed important in Wiese-Bjornstal et al's (1998) model are reviewed in detail. This research is based upon the premise that adherence to a rehabilitation programme is strongly linked to diminishing the risk of re-injury and aiding recovery. The last paragraph goes on to set out the rationale for this piece of research and is firmly based on the recent research discussed in this literature review.

2.2 INTEGRATED MODEL OF RESPONSE TO SPORT INJURY

Original research which sought to explain the psychological response to sport injury led to the establishment of stress process and grief process models (Weiss and Troxel, 1986; Kubler-Ross, 1969; Gordon, 1986). Grove (1993) proposed a stress process model. The Kubler-Ross's (1969) Grief Model viewed grief as a five stage process; denial, anger, bargaining, depression and acceptance (Kubler-Ross, 1969). The stage model approach viewed injury as a loss of part of self (Brewer, 2001), and that recovery from injury is a staged process. Empirical research conducted by MacDonald and Hardy (1990) found shortcomings in Kubler-Ross's (1969) grief model. The participants in their study did not experience grief as the five stage process alluded by Kubler-Ross. Brewer (1994) found that stage models did not explain variance in individual response to injury.

Wiese-Bjornstal et al's (1998) Integrated Model included Andersen and Williams's (1988) pre-injury variables. What the Integrated Model did was it combined the existing pre-injury and post-injury models in order to produce a model which attempted to present a complete explanation of process of psychological response to injury. She and her colleagues proposed that the injured athlete post-injury has to appraise the injury to be a loss before the post-injury emotional response associated with loss such as grief is activated. The emotional response in turn influences the behavioural response. The Integrated model takes into account that the athlete's stress response to injury is the result of pre-injury and post-injury factors (Wiese-Bjornstal et al, 1998). The model proposes that certain preinjury factors bias athletes towards experiencing sport injury, for example, personality characteristics, injury history and coping resources. Gordon, Milios and Grove (1991) found that the pre-injury personal variable, injury history, may strongly influence response to injury.

Examples of situational variables that have a bearing on the injury process include time of the season and social and environmental influences such as social support. Wiese-Bjornstal and colleagues proposed that these personal and situational variables influence the post-injury responses of the athlete's cognitive appraisal of the injury which goes on to determine their emotional responses such as grief which impacts on behavioural responses. For example, adherence to a rehabilitation programme (Naoi, 2008).

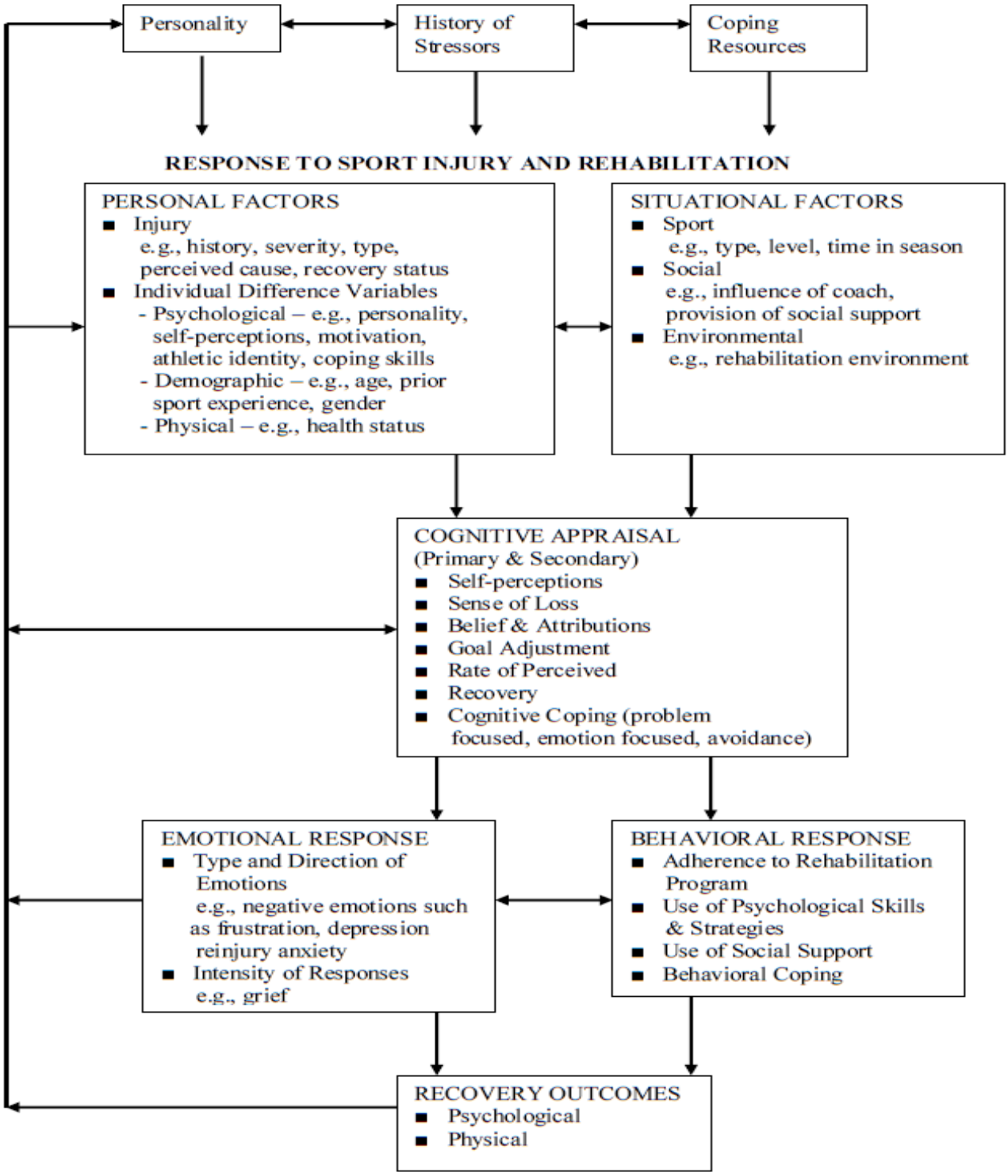

Figure 1 – Wiese-Bjornstal et al (1998). An Integrated model of psychological response to the sport injury and rehabilitation process.

Further, psychological responses vary over time. Personal and situational factors have an influence throughout the entire process. The recovery process is characterised by constant change and may go in two ways. It allows that the most common route of psychological response to injury is one where cognitive appraisal leads on to emotional response which determines behavioural response and recovery. Equally the model concedes that it may also lead away from full recovery in the event of a negative recovery outcome (Wiese-Bjornstal et al, 1998).

2.3 ADHERENCE

Adherence has been defined as “an active, voluntary collaborative involvement of the patient in a mutually acceptable course of behaviour to produce a desired preventative or therapeutic effect” (Meichenbaum and Turk, 1987, p. 20). Niven (2007) found that adherence behaviour may impact on recovery outcome. Meichenbaum and Turk’s (1987) definition of adherence stresses the importance of “voluntarily” taking an “active” interest in rehabilitation. Heil’s (1993) research concludes the athlete will not make a good recovery if participation is not active and voluntary. He strongly links recovery from injury and reducing the risk of re-injury with adherence to rehabilitation (Heil, 1993). Brewer (1999) found that rates of adherence can be as low as 40%. Duda, Smart and Tappe (1989) conducted research into why athletes do not adhere to their rehabilitation programme. They used forty intercollegiate athletes with at least a second-degree sport injury. They found that high levels of social support; task involvement and levels of self-motivation were important predictors of adherence to the rehabilitation programme.

The athlete’s cognitive appraisal of the injury will impact on adherence levels (Wiese-Bjornstal et al (1998). From the moment that the injury occurs, athletes encounter a range of negative psychological reactions such as “Why has this happened to me?” or “Why now?”. One of the strengths of the Wiese-Bjornstal et al’s (1998) model is that it includes the psychological aspect of healing and on devising strategies to overcome and manage negative reactions to injury like the ones outlined above. Numerous psychological responses can be witnessed immediately after the injury has happened and continue long after recovery (Wilk, Andrews and Harrelson, 2004). Emotions such as depression, anger and anxiety are common reactions that individuals experience when injured (Tracey, 2003). The intensity and nature of these responses depends on personal and situational factors unique to the individual

such as the type of injury sustained, the meaning that participation has for the athlete and the time of the season that the injury is sustained at (Wiese-Bjornstal et al, 1998).

A study conducted by Lynch (1988) found that severely injured athletes experienced a staged process of emotional responses which are as follows: denial, anger, bargaining, depression and acceptance (Kubler-Ross, 1969). He found that individual athlete's emotional reactions vary, depending on how they interpret the injury and how much stress is caused. The athlete's view of the injury determines how they go on to cope with it, adherence and whether they make a full recovery. For instance, the athlete may view a minor injury such as a pulled groin as devastating because it may prevent him playing in an important game. The subsequent de-motivation may compromise adherence. Another factor that has been found to have a negative impact on adherence is when professionals fail to educate injured athletes about their rehabilitation programme. This was evident from Udry's (1997) study which looked at athletes after knee surgery. He found that athletes who actively sought information from professionals about their rehabilitation programme and injury adhered to a larger extent than the athletes who did not request such information. A study conducted by Niven (2007) reported similar findings to Udry (1997) in that adherence levels increased when the injured athlete had a good understanding of the rehabilitation process.

2.4 COPING STRATEGIES

Coping impacts on the response to sport injury and the rehabilitation process (Wiese-Bjornstal et al, 1998). Coping is defined as "the process of managing demands (external or internal) that are appraised as taxing or exceeding the resources of the person" (Lazarus and Folkman, 1984, p. 283). Broadly, there are two types of coping: emotional focused coping and problem focused coping (Weinberg & Gould, 2003). Naoi (2008, p. 3) described emotional focused coping "as a method where individuals attempt to control emotional responses by the use of calming techniques such as meditation and relaxation in order to modify the sense of the given situation". Emotional focused coping is often employed when the event is beyond the control of the individual such as a severe injury, and where it is important to come to terms with it (Fawzy, Kemeny, Fawzy, Elashoff, Morton, Cousins and

Fahey, 1990). Whereas, problem focused coping is “when individuals make efforts to alter or manage the problem that causes the stress” (Naoi and Ostrow, 2008, p. 2). An example of problem focused coping is when an athlete makes an attempt to educate themselves about their injury.

Wiese-Bjornstal’s et al’s (1998) model takes on the characteristics of the Andersen and Williams (1988) Model of Stress and Athletic Injury as they both factor in the importance of coping strategies. The first feature that the Andersen and Williams (1998) model attributes importance to is the coping resources of the injured person. When the athlete has good stress management and mental skills, good coping behaviours and a strong level of social support, these may act to reduce the impact of life stress factors. A second important feature of this model is that it sets out interventions which can be used by the athlete to help manage the stress caused by injury.

When an athlete sustains an injury, their response may be multifaceted and influenced by personal, situational factors and stressors in the environment (Wiese-Bjornstal et al, 1998). Daly, Brewer, Van Raalte, Petitpas and Sklar (1995) found links between emotional responses such as depression and anger caused by injury and an unwillingness to attend rehabilitation sessions. Ross and Berger (1996) found that when injured athletes experienced a reduction in the variable of anxiety, for example, attendance at rehabilitation sessions increased. Therefore, this empirical research provides a sound basis for proposing that post injury psychological interventions may assist athletes to manage negative emotions. The findings of a study conducted by Louder (2005) indicated that coping strategies may determine whether recovery is successful or not when the athlete is overwhelmed by negative emotions.

2.5 COPING STRATEGIES AND ADHERENCE TO THE REHABILITATION PROGRAMME

Adherence to a rehabilitation programme is one of the greatest challenges that an injured athlete will ever have to face but nevertheless it is viewed as essential for the athlete to return to full fitness. Pargman (2007) views rehabilitation as “a long and difficult process which… requires them to adhere to a comprehensive rehabilitation process” (Pargman, 2007, p105). Rehabilitation adherence is defined as “the

behaviours an athlete demonstrates by pursuing a course of action that coincides with the recommendations of the athletic trainer" (Granquist, Gill and Appaneal, 2010, p251). Therefore, research has focussed on how to improve adherence and has identified a number of coping strategies and psychosocial interventions which may assist. Models including Wiese-Bjornstal et al's (1998) model point to the fact that sports injuries have physical and psychological dimensions which should be focused on during rehabilitation. The next part of this sub-section will review the research in relation to three psychological interventions that have been found to promote adherence.

2.5.1 GOAL SETTING

Goal setting is an important psychological skill in sport today, especially in enhancing an athlete's performance and in facilitating rehabilitation (Evans and Hardy, 2002). Scherzer, Brewer and Cornelius (2001) established that injured athletes who set rehabilitation goals showed increased levels of adherence. Heil (1993) found that goal setting is not a widely used intervention. Often when goals are made for the athlete, they are unclear and not measurable (Weinberg et al, 2001).

Ultimately, the injured athlete's long term goal is to return back to preinjury performance levels. Nevertheless, it is important to set short term goals because without these goals, the athlete will not be able to see whether they are progressing forward (Christakou and Lavallee, 2009). A study conducted by Levy, Polman and Clough (2008) found that when medical professionals set goals early on in the patient's treatment, this improved the patient's adherence to their programme. On the other hand, the research conducted by Wilson and Brookfield (2009) contradicts the findings of Levy, Polman and Clough (2008) in that they suggest that it is more important to set goals between the middle and the end of the athlete's rehabilitation programme to make sure that the athlete maintains high levels of motivation in order to adhere to it. The contradictory findings indicate that further research needs to be carried out into this field to get a clearer understanding of when this intervention is most effective for an injured athlete.

2.5.2 SOCIAL SUPPORT

Management of stress may be a major problem for an injured athlete. If they attempt to manage stress alone, it may cause a reduction in self-esteem and adversely impact on their adherence (Gallagher and Gardner, 2007). One psychological intervention which has been found to help athletes manage stress is social support (Clement and Shannon, 2011). Social support has been widely researched and has been found to a play a very important role when used in the recovery process. Bone and Fry (2006) found a positive correlation between a high level of social support, high levels of self-belief and self-motivation in the injured athlete and improved adherence to the rehabilitation programme. These findings are similar to those of Lu and Hsu's (2013) study. Lu and Hsu's (2013) study found that strengthening the individual's social support network has a beneficial impact on performance during rehabilitation and on their well-being and beliefs. Wadey and Evans's (2012) study lent support for the previously stated idea that social support was an influential factor which helped the injured athlete to stay positively motivated during recovery. This facilitated adherence and often full recovery to sport. Wiese-Bjornstal, Smith and LaMot (1995) also found that those athletes who adhered to the rehabilitation programme and achieved better post injury outcomes had a strong social support network, incorporated mental skills in order to manage pain, and limited any risk taking behaviour.

Social support can come from friends, coaches, family member's, sports psychologists and athletic trainers working with the injured athlete. Many studies have looked at whether significant others in an athlete's life can play a key role in their rehabilitation when a strong social support system is formed between them (Taylor and Taylor, 1997; Arvinen-Barrow, 2009; Carson and Polman, 2008). Larson, Starkey and Zaichkowsky (1996) interviewed athletic trainers to ascertain the features and behaviours of athletes that handled their injury well. They observed that athletes who adhered well to their programme demonstrated the following features: a positive attitude to injury; were motivated to work hard throughout rehabilitation and remained involved with the team. One of the features of the athletes who did not achieve a successful rehabilitation was their poor communication with coaches and others around them. Overall, this study found that when helping athletes to cope with injury, athletic trainers ensured that the athlete stayed involved with their team,

helped them improve their social support network and used goal setting (Evans and Hardy, 2002)

A study conducted by Granito (2001) found that injured athletes benefited when they had a connection with other athletes who experienced similar injuries as themselves. Fisher, Domm and Wuest (1988) observed that motivation and acceptance towards adherence improved when the injured athlete received greater amounts of social support from the coach and physiotherapist. Also, a study conducted by Johnston and Carroll (1998) found that family and friends play a key part in the injured athlete's emotional and practical support.

2.5.3 IMAGERY

Imagery is viewed as an important psychological intervention in an athlete's rehabilitation programme. It can be used to help the athlete re-create experiences in the mind, rehearse skills, to set rehabilitation goals and to help deal with stress through the use of relaxation when confronted with pain (Hamson-Utley, Martin and Walters, 2008). Imagery is defined as "using one's senses to re-create or create an experience in the mind" (Vealey and Greenleaf, 2010, p268).

Green (1992) found that when athletes used imagery during the rehabilitation process, they experienced a reduction in stress about their injury. Ievleva and Orlick (1991) found that when patients used healing imagery, they experienced faster healing of the patient's knee injuries. Similar results were found in Hamson-Utley, Martin and Walters (2008) study as positive visualization helped to decrease the injured athlete's anxiety and stress. More importantly, the use of imagery helped athletes experience a more rapid recovery and higher adherence levels to their rehabilitation programmes.

2.5.4 COMBINING PSYCHOLOGICAL INTERVENTIONS

Professional sports practitioners have suggested that a combination of several different psychosocial interventions help with an athlete's recovery and rehabilitation from injury. Shaffer & Wiese-Bjornstal (1999) encouraged the use of mental imagery, especially focusing on imagining the injured body part is healed; accomplishing rehabilitation tasks; focusing on positive thinking; setting goals and using social support in order to assist recovery and adherence. Shaffer & Wiese-Bjornstal (1999)

regard it as important that all the skills outlined previously should be held by professional sports practitioners who could either use or teach them to the injured athlete. Wadey and Evans (2012) also advocate the use of goal setting and social support to reduce the impact of stressors.

A study carried out by Gould, Udry, Bridges and Beck (1997) recognised four key stages of coping strategies which elite skiers employed in order to deal with their season ending injury. The first category identified was that the skiers managed their emotions and thoughts. This was accomplished through mental imagery, sharing emotions and by staying positive throughout their rehabilitation. In the second stage, skiers set goals and strove to develop high levels of motivation in order to focus on their rehabilitation. A third coping strategy that was employed was self-distraction, for example, taking part in a number of events and keeping themselves busy was seen as important so that all of the skier's time was not taken up by training or their rehabilitation programme. Lastly, the use of social support from teammates, family members and coaches was also employed. This coping strategy showed the significance that support has in a rehabilitation programme. When he compared the skiers that successfully recovered from injury to the skiers who did not, Gould et al (1997) established that positively dealing with emotions and thoughts, particularly by means of mental imagery and self-distraction, differentiated the two groups.

Deci and Ryan's (1985) self-determination theory attempts to explain why someone is motivated to act in a certain way (Deci and Ryan, 2000). Podlog and Eklund (2006) proposed that self-determination theory is useful in understanding the experience of the athlete from the onset of the injury throughout recovery to when they return to sport. This model attempts to demonstrate how coping strategies and psychosocial interventions may support the injured athlete's psychological reactions. Within self-determination theory, it is suggested that people need to feel competent, relatedness and autonomy in order to reach psychological growth. Competence is the desire to interact effectively with the environment and to attain valued outcomes (White, 1959). "Relatedness refers to the desire to feel connected to others" (Deci and Ryan, 2000, p5). "Autonomy refers to the degree of volition one feels in pursuing the activity and one's values" (Guzman and Kingston, 2011, p3). The net result of becoming injured means that the athlete may have reduced feelings of autonomy, relatedness and competence. As a result of becoming demotivated, they may not

adhere to the rehabilitation programme or be confident that they will compete at the same level of competition as before. Podlog and Eklund (2006) found that cognitive interventions such as imagery, positive thinking and goal setting can help an injured athlete by helping the athlete motivate themselves to take responsibility for their own rehabilitation programme and helping to increase their belief that they will return to full health. If these interventions are used appropriately, they can help the injured athlete redevelop their lost feelings of autonomy, relatedness and competence and enhance their behaviours and emotions during rehabilitation.

2.6 RATIONALE

The above research was for the most part conducted on elite athletes and their use of coping strategies to facilitate adherence. On the whole, there is very little information in the literature about non-elite athletes. Giving the ever increasing number of sports injuries each year amongst this sector, information needs to be obtained on this important subject. Therefore, the aim of this study is to examine the effect that coping strategies used by non-elite athletes has on their adherence to the rehabilitation process. The results may provide important information on coping strategies to help adherence which non-elite athletes can incorporate into their own rehabilitation programmes and which can inform professionals when they are developing programmes for this sector. A qualitative method of data collection will be used in order to gather rich data for this study, through the use of semi-structured interviews.

CHAPTER III

METHODOLOGY

3.0 METHODOLOGY

3.1 INTRODUCTION

The research design adopted a qualitative approach. Five semi-structured interviews were carried out after injury onset, at mid-point and at the point of returning to sport. The study is retrospective and was carried out by athletes who were chosen after they had been injured. Initially, they were asked to look back and evaluate their experiences at the onset of injury. These athletes were then asked to reflect on their current experiences as they underwent the rehabilitation process at mid-point and upon return to sport.

3.2 PARTICIPANTS

This study contained a sample of injured non-elite athletes [n=5] who had sustained a sport related injury which required them to follow an injury rehabilitation programme. Participants were recruited if they were unable to participate in sport for at least four to six weeks. The reason for choosing this time period is that it allowed the participants to engage in a rehabilitation programme.

The participants involved both female [n = 2] and male [n = 3, where ages ranged from 20 to 21 [M = 20.4 years, SD = +0.54 years]. Participants were recruited from Cardiff Metropolitan University as its demographic includes athletes who participate in sport at a non-elite level. Each participant played for Cardiff Metropolitan University and hailed from a variety of different sports; basketball [n = 1], hockey [n = 1], rugby [n = 1] and football [n = 2]. The injuries sustained from the participants were; ACL rupture [n = 1], dislocated hip [n = 1], strained ligament in knee [n = 1], pulled hamstring [n = 1] and sprained ankle [n = 1].

3.3 INSTRUMENTATION

Data was collected by using semi-structured interviews. The interview topics and questions were aimed at gathering information about the background of the participants, their coping strategies and their adherence to their rehabilitation programme. They were produced from perusing the current relevant literature on the subject of coping strategies and adherence to a rehabilitation programme. The reason for using semi-structured interviews is that this format permits the researcher “to adopt a flexible approach to data collection, and can alter the sequence of

questions or probe for more information with subsidiary questions" even though it uses a standard set of questions or schedule (Jones and Gratton, 2003, p. 141). Dale (1996) suggested that if the interview structure is too rigid, it may reduce the interviewer's chances of effectively gauging the true nature of the athlete's experiences. So in order to ensure that this problem did not occur, semi-structured interviews were used to permit the researcher to alter the sequence of questions, if deemed necessary. The interviews were recorded through the use of a Dictaphone.

3.4 PILOT STUDY

Before the main interviews took place, a pilot study was carried out by interviewing an injured athlete who met the required guidelines for this study. Van Teijilingen and Hundley (2002) conducted research which showed that a pilot study is a crucial component for a good study design. It increases the likelihood of carrying out a successful study as it permits the interview questions to be customised in order to ensure full contribution, understanding and agreement from the participants. Once the pilot study was completed, questions in the interview guide were re-worded to assist participants to clearly understand them and to gain more valuable information from each participant, ensuring that the questions targeted the research topics.

3.5 INTERVIEW GUIDE

Each participant was interviewed on three occasions. These were after injury onset, mid-point of rehabilitation and return to sport phase. The interview guide consisted of three sections. In order to gain as much useful information as possible, probing questions were used in each section to gain additional information from the participants. Elaboration probes were used to prompt more in-depth responses about any particular point throughout the interview (Gratton and Jones, 2010). Clarification probes were also used to help clarify any points during the interview that were not made clear or misunderstood by the researcher (Gratton and Jones, 2010).

The first section gathered background information about the participant. For example, what sport they participated in and how long they had been playing this sport for. This section also looked at how the participant sustained their injury and the severity of the injury. Information about the participant's background was only obtained during the first interview. The second section was based on the Wiese-Bjornstal et al's (1998) model and looked at how the participant had been coping

since the injury occurred, their psychological responses towards the injury, any stressors perceived from the injury and whether the participant used any form of coping strategies to help deal with the injury. The third section looked at the athlete's rehabilitation programme and their adherence to it and whether the use of coping strategies, if stated by the participant, helped towards their adherence.

3.6 PROCEDURE

Before interviews could be carried out, ethical approval was needed from the University. Once obtained, the participants were contacted either by email or in person. Detailed explanations were provided to the participants to ensure good understanding about the aim of the study and of what they would be required to do if they decided to take part. Each participant was provided with a detailed information sheet about the study. It was highlighted all the information collected would remain confidential and that they could withdraw at any point without providing an explanation. Once the participants had agreed to take part, they each filled out an informed consent form.

The researcher carried out three semi-structured interviews with each participant. The first semi-structured interview dealt with the period from injury onset. The second set of semi-structured interviews were carried out 2-4 weeks later and gathered information at the midpoint of the athlete's injury. The last set of interviews was carried out 2-4 weeks later and looked at the return of the athlete to sport after their injury.

Every interview took place in a study room situated in Cardiff Metropolitan University Campus and lasted roughly 10-25 minutes. The interviews were conducted between October 11th 2015 and January 22nd 2016. The researcher transcribed all the information obtained during the interview using Microsoft Office Word 2011. The transcribing permitted the researcher to obtain information which could be clarified and added to in the next interview in order to gain more insight into the research question.

3.7 DATA ANALYSIS

Patton (2002) reported that data analysis in a qualitative study is a process whereby large amounts of raw data and information are distilled to expose major patterns and relationships. Once the data had been collected from each interview, it was

transcribed verbatim by using Microsoft Office Word 2011. After each interview had been transcribed, member checking was used where a copy was sent to the participant to make sure that the information that they provided was a true reflection of their thoughts and feelings (Harper and Cole, 2012). As soon as the participants had confirmed that the transcripts were accurate and clearly reflected their point of view about the different topics, the data analysis took place. Each transcript from the onset of injury to the return of injury was read through thoroughly and repeatedly in order to ensure familiarity with the responses and coping strategies of each participant. The researcher did not commence the analysis with preconceived ideas as to what themes would emerge from the raw data. Rather an inductive approach was used to analyse the raw data in the transcripts. This permitted the main themes to become apparent during the perusal of the transcripts (Thomas, 2006).

Data reduction was then undertaken in line with Miles and Huberman's (1994) suggestion that this is the first stage of qualitative analysis. Extraneous information was discarded. Coding took place so that the raw data was grouped into first order themes, for example, when the participants expressed feelings of anger and frustration when the injury occurred (Biddle et al, 2001). First order themes were then coded into a higher order theme, for example, negative first thought. These themes were placed in Hierarchical tables (Appendix E).

3.8 RELIABILITY, VALIDITY AND TRUSTWORTHINESS

Reliability is defined as "the extent to which results are consistent over time and an accurate representation of the total population under study …. and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable (Joppe, 2000, p1). To ensure reliability, each interview was based around an identical set of questions from the same interview guide. However, based on the information elicited from each participant, further probing questions were put.

Joppe (2000) states that "validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are" (p. 1). Ensuring the validity of the instrument used to gather the relevant information was an important consideration. This was achieved by an intensive perusal of the relevant

literature to ensure that questions in the interview guide extracted relevant information from the participants about coping strategies and adherence.

Golafshani (2003) suggests that the concepts of reliability and validity need to be redefined when undertaking a piece of qualitative research. Seale (1999) stated that “the trustworthiness of a research project lies at the heart of issues conventionally discussed as validity and reliability” (p266). Guba (1981) puts forward four concepts which need to be satisfied before the findings from a qualitative study have worth. These are: credibility, transferability, dependability and conceivability. The credibility criteria are satisfied when the findings truly reflect the experience of the participants (Gratton and Jones, 2010). Credibility was attained when the participants read over the transcripts of the three interviews and verified the contents as accurate. Merriam (1998) suggested that external validity or transferability is concerned with the degree to which the findings of one study can be transferred over to other situations. Transferability was achieved by providing in depth quotations from the participants. Dependability refers to “the stability of findings over time” (Bitsch, 2005, p86). Dependability was ensured by clearly recording the methods and procedures used so that another researcher could reproduce the same study. Conceivability or ensuring that similar results could be obtained from another study was attained by making a record of the interview (Marshall & Gretchen, 1999).

CHAPTER IIII

RESULTS AND DISCUSSION

4.0 RESULTS AND DISCUSSION

4.1 INTRODUCTION

This study examined the effect of coping strategies on non-elite athlete's adherence to the rehabilitation process. This part of the study endeavours to set out the results and to discuss the themes which recur over and over again in the transcripts of the injured athletes. It will focus on each phase of the rehabilitation process: injury onset, rehabilitation and return to competitive sport in turn to identify key themes that emerged. Once the key themes are identified, a discussion will follow which will relate the research to relevant literature.

4.2 INJURY ONSET

Reviewing the hierarchical tables at the injury onset phase revealed a number of themes: negative response to injury, stressors affecting participants and coping strategies used.

4.2.1 RESPONSE TO INJURY

The first theme that emerged from all the participants was how they viewed the injury when it occurred initially. Each of the five participants expressed negative emotions about the injury. They reported feelings of frustration, anger, annoyance and feeling down at the onset of injury. Participant 5 reported that the injury:

> "Just made me feel a bit down about it because obviously playing well and then injuring myself….so obviously just feel a little disappointed about it."

There are a number of studies that have examined how an athlete's emotions and moods are influenced by sport injury. In a study conducted by Wiess and Troxel (1986), they found that non-elite and elite athletes commonly responded to injury with "fear", "depression" and "tension". In another study conducted by Tracey (2003), she found that athletes described a mixture of feelings such as "anger", "being down", "confused" and "frustrated" at injury onset. Participant 1 reported that their initial thoughts about the injury was:

> "Bit of anger, frustration because it was sort of early in the season. I was playing quite well. Mostly frustration."

4.2.2 STRESSORS

Further analysis of the transcripts revealed a list of stressors which each participant had highlighted experiencing at injury onset. Research suggested that athletes experience the following stressors at injury onset: incapacitation and isolation (Evans, Hardy & Fleming, 2000; Evans et al., 2012). In line with these findings, some of the participants reported experiencing incapacitation and isolation. The most common stressor identified by the participants was the lack of mobility in the injured area. Participant 5 reported this as;

> "Current stressors are just again missing the team, movement with the leg. Yeah, range of movement within my hamstring, just getting around".

Mitchell, Evans, Rees and Hardy (2014) recognised incapacitation or loss of movement as a stressor during injury onset. Bianco, Malo and Orlick (1999) also identified incapacitation as a stressor and acknowledged this stressor as an interference in an athlete's normal functioning of life. Participant 1's answer demonstrates experiencing his lack of mobility as a stressor:

> "Probably just the usual frustration, yeah mobility, having to look at and use social support to help me get around".

Participant 3 reported feeling isolated as set out below.

> "I think if I could do my rehab there where there is other people doing it as well, then it would be more motivating than just being sat at home or going to the gym on your own and doing it yourself".

However, he appeared to have a large amount of social support from his friends and family so this would seem to contradict the findings of Johnston and Carroll (2000). They appeared to suggest that athletes who had strong social support networks did not experience isolation as a stressor. A better explanation for his feelings of isolation is to be found in the research conducted by Gould et al (1999) amongst elite skiers who had sustained season ending injury. They found that 66.6% of the participants experienced powerful feelings of isolation after being injured.

4.2.3 COPING STRATEGIES

The next theme that emerged from the interviews was that each participant was using some sort of coping strategy to help them deal with the injury, even if they did not realise they were using it. This lends support to Wiese-Bjornstal et al's (1998) model as it suggests that coping impacts on the emotional response of the injured athlete to athletic injury and the rehabilitation process. The coping strategies that were identified in this phase were self-talk and social support.

Social support was cited by four out of the five participants as a coping mechanism during the first phase. The supportive quality of the communication between the injured athlete and provider is a valuable strategy which helps the athlete to cope with the injury. Research studies demonstrate that social support has a major influence on the way that an athlete manages injury and rehabilitation (Udry, 1997; Bianco, 2001; Johnson and Carroll, 2000). Bianco and Eklund (2001) viewed social support as a social communication which aims to bring about positive outcomes. Social support was underlined in Wiese-Bjornstal et al's (1998) model as a situational factor which influences their cognitive interpretation of the injury which may further sway their behavioural and emotional responses. Research indicates that social support at the point of the first cognitive appraisal may relieve the injured athlete's perception of stress vis-r-vis injury (Uchino, 2009), ameliorate emotional responses (Rees, Mitchell, Evans and Hardy,2010) and shape self-efficacy (Podlog and Eklund, 2007).

Gould, Udry, Bridges and Beck (1997) differentiated between tangible social support and listening or emotional support and split the coping strategy into two categories. Tangible support is defined as "concrete instrumental assistance, in which a person in a stressful situation is given the necessary resources (e.g., physical help with tasks) to cope with the stressful event" (Rees, Smith and Sparkes, 2003, p137). Participant 2 speaks of being in receipt of tangible social support from friends as they stated:

> "My housemates when I initially sustained the injury, obviously I couldn't walk properly so they would… help me…. make dinner and clean up the saucepan and bring stuff down the stairs."

Emotional support is “the ability to turn to others for comfort and security during times of stress, leading the person to feel that he or she is cared for by others” (Rees, Smith and Sparkes, 2003, p137). Participant 2 also refers to receiving a form of emotional support as they stated:

> “Initially my mum and dad would text me because they’re at home, hope you’re okay, they were always texting me”.

Three of the participants reported using self-talk as a coping strategy at onset. When an athlete becomes injured, the thoughts that they have towards the injury and what they say to themselves may affect their behaviours, emotions and recovery overall (Wiese-Bjornstal et al, 1998). The participants who spoke about using self-talk in this phase seemed to use it for reassurance and to help them perform tasks which they found difficult. Tod, Hardy and Oliver (2011) said that this type of motivational self-talk is used to boost confidence, help build positive attitudes and increase effort. Participant 1 used the strategy of motivational self-talk to build a positive attitude and to bolster his morale:

> “Just constantly remind myself that it happens to everyone, injuries are just part of the game”.

Also, Participant 2 used this technique to increase their effort in relation to carrying out difficult tasks as they state:

> “Self-talk, just like being able to, from like your room to downstairs, just saying to yourself, come on, you can get down the stairs sort of thing.”

4.3 MID-POINT OF REHABILITATION

Perusal of the hierarchical tables (Appendix E) revealed a number of themes which emerged during the rehabilitation phase: stressors affecting participants, coping strategies applied and adherence to their rehabilitation programme.

4.3.1 STRESSORS

Each athlete spoke of continuing to experience stressors at the mid-point of rehabilitation. Some participants spoke of experiencing different stressors during this phase to those previously experienced at injury onset. These included: not being able to participate in sport and social comparison. The stressors experienced by

Participant 4 appeared to have taken on a greater amount of significance in this phase than previously. This connects with research conducted by Johnston and Carroll (2000) when they found that individuals experienced greater disturbances in temperament and consequently the greatest number of stressors during this phase. However, from their answers, Participants 1 and 3 appeared to experience a reduction in stressors during this phase. This result contradicts the findings of Johnston and Carroll (2000). An explanation for this may be found in the nature of the injury. Participant 4 sustained a severe injury, namely a dislocated hip whereas Participants 1 and 3 only experienced mild injuries, namely, a strained ligament and a sprained ankle. One explanation for the reduction in stressors experienced by Participants 1 and 3 during this phase is that recovery is relatively rapid for minor injuries, whereas, in the case of Participant 4, recovery was a prolonged process and results were slow to achieve as shown below:

> "Like the results don't come as quickly as I like so I become very frustrated and sort of give up".

Tracey (2003) found that individuals with more severe injuries, found it difficult to stay positive.

Three out of the five participants voiced being strongly affected by the stressor of not being able to participate in sport. This stressor was also identified in Mitchell et al (2014) study. Participant 5 expresses this as he stated:

> "Especially still not being able to play and not being able to train and being around the team. That's still affecting me quite a bit to be honest."

Participant 4 also expresses this stressor as she stated:

> "I can't play or train so it's sort of like you try to ignore otherwise you'll over think it, get too worried…. like I try and go to remain within the team…. but still can't train so it's still frustrating."

Two participants mentioned social comparison as a source of stress. They were worried that other players in the team might take their position and that they would find it difficult to regain their position in the team. Participant 3 demonstrates this in the following answer:

> "Someone has been playing well in the team and you may not get back in straight away."

This result lends support to the findings of Gould et al's (1997) study which found that social comparison was viewed as a stressor by a third of those surveyed.

4.3.2 COPING STRATEGIES

Each participant admitted to still using coping strategies to manage the stressors at the mid-point of rehabilitation. These were self-talk and social support. The same three participants reported maintaining the use of self-talk in this phase. The use of social support as a coping strategy decreased as only three participants reported using it during this phase.

Participant 3 had incorporated another coping strategy at rehabilitation, namely, goal setting. The use of goal setting may provide positive motivation in terms of encouraging adherence to the rehabilitation programme as it supplies quantifiable evidence of improvement (Arvinen-Barrow and Walker, 2013). Participant's 3 use of goal setting helped adherence because he accomplished his short term goals, as he states below:

> "So I guess I am sticking to it quite well because I can see progress and… I don't really want to stop now."

Wiese-Bjornstal et al's (1998) model suggests that when athletes use psychological strategies such as goal setting to positively influence their emotional response to athletic injury, this also has a positive impact on their cognitive interpretation of the injury. Support for this proposition is found in Participant 3's answer. Having accomplished a short term goal, he experienced the positive emotional response that rehabilitation was "working". His cognitive appraisal was that the rehabilitation programme was "doing well" as stated below:

> "You can reach short term goals that then builds into the long term goals and once you achieve a short term goal you just think that everything is working and going right, you know the programme is doing well."

Wiese-Bjornstal et al's (1998) model found that when athletes set goals during rehabilitation, this had a positive effect on the athlete's psychological and physical healing. Research that backs up this finding was carried out by Ievleva and Orlick (1991). Niven's (2007) study found that the use of goal setting by injured athletes had a positive effect on their adherence to the rehabilitation programme. Further research conducted by Fisher, Mullins and Frye (1993), found that goal setting provided positive reinforcement in the form of achievement and triumph.

Three of the participants still carried on using the coping strategy of self-talk. They had used self-talk during the injury onset stage, for example, to motivate themselves to carry out simple tasks such as walking upstairs. However, they used it in a different way during this stage, for example, to calm down and push through rehabilitation sessions. Participant 1 stated this:

> "Yeah, I'm still using self-talk…. more so in the gym…. just talking to myself saying that I can do all the things that I used to be able to do."

This type of self-talk is referred to as self-determined self-talk as the participants have completely determined their own self-talk to help them complete tasks and drills. According to Hardy (2006), based on Deci and Ryan's (1985) cognitive evaluation theory, the athlete's own self-talk ought to positively influence their motivation.

Only three participants were using social support as a coping strategy whereas during the first interview, four participants used this strategy. During rehabilitation, an athlete has different types of social support available to them (Bianco, 2001). The participants echo this when they speak of having different types of support available to them such as coaches, teammates and family members. This is important as Carson and Polman (2008) suggest having many sources of support available to an injured individual means that they are not limited by misleading advice from just one individual.

Participant's 1 and 3 speak of how their family provides support to them. For example, Participant 3 states that:

> "I think the family is more like the general support just like I said not to worry and stuff like that and everything will be fine"

This statement provides support for Taylor and Taylor's (1997) study which found that family were best suited to provide injured athletes with listening and emotional support. In a study conducted by Arvinen-Barrow (2009), she found that family members of injured football and rugby professionals offered vital social support.

When Participant 3 spoke about the support he received from teammates as stated below,

> "The team…. they've all been quite supportive of getting back…. you know even the person who is in your position, he is even still helping you and giving you support".

This lends support for Carson and Polman's (2008) research that team members, even the team member who took his place in the team, may provide motivational support to the injured athlete.

Podlog and Eklund's (2007) study viewed coaches as being an important source of support in terms of information, finances and boosting moral. The findings of this study is echoed in the answer of Participant 5 as set out below:

> "Coach…help encourage me to come to training and inviting me to watch the games and being in the changing rooms and stuff like that which helps, I think without that it would be a lot more difficult so that does help".

Participant 4 stopped using social support as a coping mechanism. Johnston and Carroll (1998) suggest that negative emotional responses such as those experienced by Participant 4 may be due to lack of normal functioning. The lack of normal functioning on her part allied to loss of athletic identity as she is not able to fulfil the role of captain may go some way to explaining her struggle with adherence. Research indicates that when a captain becomes injured and relinquishes captaincy, they may struggle with no longer feeling a part of the team (Arvinen-Barrow and Walker, 2013). However, given that she has made a cognitive evaluation of the transfer of captaincy as a negative experience, this may have caused her to feel like not using social support.

4.3.3 ADHERENCE LEVELS

The last theme that emerged during the mid-point of the rehabilitation stage was to do with their adherence levels. During this phase, three of the participants stated that they were adhering to the programme well whereas two of the participants thought that they were not adhering to the programme as much as they should be. For Participants 1, 3 and 5 who felt that they were adhering well, they all stated that they used some sort of social support. Whereas, Participants 2 and 4 did not. During the mid-point phase of rehabilitation, social support may be useful to motivate athletes in carrying on through daily struggles and help to meet rehabilitation goals or overcome any setbacks that the athlete may experience (Arvinen-Barrow & Walker, 2013). This relates to Participants 1, 3 and 5 because they all stated that the support that they had from either coaches, parents or teammates helped to motivate them to continue on with their programme even at times when they gave up with it. For example, Participant 3 stated:

> "I do miss the odd stretching session…. if I'm in the house and I've missed it my dad usually knows so my dad will tell me to do it and give me a bit of motivation to actually do it."

A reason why Participant 4 found it hard to stick to the programme is, as she states:

> "I get bored of it. Then my adherence to it completely drops which then I don't get the results and then I blame someone else for it."

Phase 2 of rehabilitation is generally the longest phase of rehabilitation and therefore is the most difficult for athletes to endure especially for those with a serious injury, like Participant 4 who has a dislocated hip. Wiese-Bjornstal et al's (1998) model indicates that the route to recovery is a continual one in that cognitive evaluations impact on emotional responses which impact on behavioural responses. This process may be viewed as a two directional process. When the results at each of the three phases are positive, this would lead the athlete in the direction of full recovery. Participant 4's evaluation of the loss of her captaincy gives a good example of how the model demonstrates what occurs with recovery when the outcomes are negative. This leads to her not adhering to the programme as well as she should be.

4.4 RETURN TO SPORT

During the return to sport phase, a number of themes were revealed from the analysis of the transcripts: stressors, fear of re-injury, coping strategies used and adherence to the rehabilitation programme.

4.4.1 STRESSORS

During this phase, the stressors that were identified in the previous two phases like mobility issues, isolation and not training, were no longer an issue because they were either returning to training or they had actually returned to playing sport again. This was evident in Participant 2's response when she stated:

> "I'm involved within their shooting sessions now so I'm there sort of participating as much as I can be so I'm not sort of isolated from them."

Also, Participant 5 stated that:

> "Range of movement is…. fully there really. I got back into playing so it's moving fine and obviously it's helped being around teammates again training and obviously in the game so that's helped me performed."

Pearson and Jones (1992) reported that towards the end of rehabilitation and the return to sport, the athlete may exhibit more positive thoughts which may include a confidence gain. Each participant reported experiencing positive thoughts towards the end of their rehabilitation. Each participant saw improvements in their injury. This helped give them motivation to stick to their programme and keep on carrying it out. For example, Participant 5 stated that:

> "I noticed change and that motivated me then to just keep adhering to the programme."

Injury literature demonstrates a pattern that through time the athlete experiences emotions which move from negative to positive throughout the rehabilitation process (Quinn and Fallon, 1999). This was evident as at injury onset, participants felt emotions such as frustration and annoyance. Then, during the mid-point of rehabilitation, athletes experienced positive and negative emotions as the injury healed and then during this phase, athletes felt excited about returning to playing again.

4.4.2 FEAR OF RE INJURY

However, one common theme that emerged from all five participants was the fear of re-injury when they return to sport. The fear of re-injury can prevent their re-involvement in sport again (Finch, Owen and Price, 2001). This fear may cause them to question whether they are psychologically and physiologically ready and evading any situations which could cause the injury to reoccur (Evans et al, 2000). Participant 2's response demonstrated she was considering evading playing again in case it caused the injury to occur again as stated below:

> "I question whether… is it worth like playing again in case the process happens all over again."

Also, Participant 5 who had begun to play again, had this fear before stepping back onto the field as he states:

> "I was obviously a bit apprehensive about the injury in case of re-injury but I was excited".

4.4.3 COPING STRATEGIES

At return to sport, each participant reported using at least two different types of coping strategies. These were as follows: self-talk, social support, goal setting and imagery. Participants 4 and 5 mentioned for the first time using imagery. Imagery was used to help Participant 4 relax and to assist both of them to mentally prepare for the return to sport. Having sustained injury, at the return to sport stage, the athlete may be hampered by re-playing images of past negative performances and also of re-injury. Imagery can be used to overcome these difficulties as it can help focus on the images of successful past performances pre-injury. In a study conducted by Vitali (2011), he found that the use of imagery at the rehabilitation phase improved their return to sport. Both participants spoke highly of how the use of imagery had helped them to mentally prepare themselves for the return to sport, as illustrated by Participant 5:

> "Before the games it just helped me focus and get my mental game okay because my physical had been improving over the rehab process and recovery had finished so I needed to get mentally ready for games."

Their comments appear to lend support to the findings of Vitali's (2011) and Driediger, Hall & Callow's (2006) research.

The only coping strategy to be employed by all five participants was social support. This was the first time throughout the three interviews that all five participants used the same coping strategy. Wadey and Evans (2012) reported that social support enabled the athlete to remain positive, helping them adhere to rehabilitation, which often led to being fully recovered upon return to sport. Corbillion, Crossman & Jamieson (2008) reported that coaches and team members are a source of positive support both before and during participation in sport. This was evident in Participant 3's response as he stated that his teammates:

> "The football boys…. they tell you everything will be fine…. letting me straight back in, there was no problems…. always encouraging if I made a mistake".

Podlog (2006) suggests that it is good practice when coaches and teammates strive to provide positive support before the game. This was reported by Participant 5 who stated:

> "The coach would just text me to just turn up to training and then that would give me confidence."

Only Participant 3 used goal setting as a coping strategy from the mid-point of rehabilitation to the point of his return to sport. He stated that goal setting was a key strategy for him as stated below:

> "Like I said the goals give you something to aim for… they're like little stepping stones that you take. They've been very helpful."

His comments lend support to Arvinen-Barrow and Walker's (2013) position, as they stated that accomplishing goals provides participants with evidence of small successes on their return to sport and boosts their psychological morale.

4.4.4 ADHERENCE

The last theme to emerge during the return to injury phase was that each participant spoke of how they were adhering well to the end of their programme. Participant's 3,

4 and 5 all commented on how improvements in their injuries motivated them to adhere and progress further. Participant 5's answer below demonstrated this:

> "Adherence probably increased because I noticed change and that motivated me then to just keep adhering to the programme."

The increase in social support from teammates may go some way to explaining adherence as the participants were now taking part in sessions with their teammates. Participant 2 alludes to this factor during phase three as stated below:

> "Better now than it was kind of a few weeks back before I had the opportunity to be invited to take part in like the physio sessions programme so I think that's down to having other people there to kind of motivate you."

whereas in the first and second phases she had problems in adhering because she felt isolated.

The use of coping strategies outlined above may have contributed in no small part to adherence. Handegard, Joyner, Burke & Reiman (2006) suggested that the use of psychological skills such as coping strategies could aid an athlete to return to competition. Each participant spoke of how the coping strategies that they utilised from the onset of injury, to the point of return did help them to either stick to or get back on track at times of difficulty. For example, Participant 5 stated that:

> "It was definitely social support around the start, sort of coaches, players, friends, family telling me to do the exercises or come to training and little comments like that. Towards the end it was mental, social support was helpful throughout, plus added self-talk and imagery helped my mental state towards getting back in to return to sport."

Participant 3 refers to how goal setting and social support has helped him to return to sport as he states below:

> "The goals give you something to aim for… they're like little stepping stones that you take. Then social support has just been really good because whenever you feel down or feel that your struggling… you know that you've always got someone there."

4.5 STRENGTHS, LIMITATIONS AND FUTURE RESEARCH

The research undertaken had a number of strengths and weaknesses. The first strength lies in its design. This study used a qualitative methodology in order to gather a wealth of information from the participants about their feelings and experiences of injury (Gratton and Jones, 2010). A further strength of using a qualitative design is that it adopted a longitudinal approach. This allowed the extracting of information about each phase (injury onset, rehabilitation and return to sport) of the injury process which enabled the gathering of in-depth explanations from the non-elite athletes of their injury experiences and whether coping strategies facilitated adherence to each stage of their rehabilitation programme instead of just taking a snapshot of their thoughts and feelings at one moment in time. The nature of the research required collecting data over a number of weeks. This proved to be time-consuming. Compared to quantitative research where a large number of participants are normally sampled, only five participants was used in this study. Also, the study only used participants from four sports: 2 football, 1 rugby, 1 hockey and 1 basketball. These were all team based sports. A limitation of the study is the findings cannot be regarded as being representative of non-elite athletes who play individual sports who might not have, for example, as much social support from team mates. This is due to the fact that only a small number of non-elite participants were used, they had a team based focus and they were all of similar age. Therefore, future research could focus on non-elite athletes who take part in individual sports to see if there is a difference in the way that coping strategies are applied compared with coping strategies employed by athletes in team based sports (Udry, 1997).

The use of semi-structured interviews was another strength of the study because it permitted the extraction of detailed information. This tool allowed conversation to flow freely and central themes to become apparent. These themes may not have emerged if the interview had followed a more structured format (Dale, 1996). A shortcoming of the study was that participants were requested to look back and remember their past experiences, especially at the injury onset phase where one to two weeks had elapsed prior to the first interview. This particularly applied to Participant 2, who was interviewed about injury onset, at the point where she was a month into her rehabilitation programme. This delay may lead to the omission of important information quite genuinely as the experience is being recollected

retrospectively rather than in the present time (Wiese-Bjornstal et al, 1998). The accounts provided maybe unreliable because some of the participants may have chosen to omit or misrepresent their feelings about some aspects of injury rather than reveal themselves to be weak for instance. One way to assist the participants to recall their experiences of injury is to suggest that the participants in future research studies use diaries to make contemporaneous notes of their experiences of injury and coping strategies used. This will provide the foundation of remaining interviews as contemporaneous recording will provide more accurate recollections. Stone et al (1998) found that when diaries were used to accurately record experiences on a regular basis, results were less likely to be distorted.

A further strength of adopting the qualitative approach was that it enabled probing questions to be utilised so as to clarify answers which were ambiguous and to elicit more extensive information. Lastly, the researcher's lack of experience in interviewing may have disadvantaged the study. The net result of that inexperience may have led to a poorer quality of information being elicited from the participants.

4.6 PRACTICAL IMPLICATIONS

The data and the findings obtained from this study ought to be taken into account when a physiotherapist is setting up a rehabilitation programme for non-elite athletes. They need to consider each non-elite athlete as an individual with their own emotional reactions to injury which are shaped by influences from their past and who are still under the influences of social and environmental factors which goes on to influence their choice of coping strategies and adherence behaviours throughout the different stages of injury. When designing the programme, they need to involve the non-elite athlete in its design by engaging in a dialogue with the individual in order to ascertain which strategies they consider to be the most effective at each stage of the injury process to help improve adherence. Coaches also need to factor in the fact that each team member is an individual and not adopt a one size fits all approach, when considering how best to guide and support the player through the injury process. Coaches also need to understand just how important social support is as a coping strategy as it can boost motivation levels and therefore adherence levels in the face of negative emotional reactions.

CHAPTER V

CONCLUSION

5.0 CONCLUSION

To conclude, this study has provided an insight into how coping strategies are used by non-elite athletes to help with adherence to their rehabilitation programme. The results of the study show that throughout the three stages of injury, each participant applied some sort of coping strategy to help them deal with the injury and to facilitate adherence, for example, self-talk was used by three of the participants throughout each phase of the injury process. Social support was employed by all five participants during the return to sport phase but some did not use it in the earlier stages. Each participant used the coping strategy they deemed necessary to support them through different stages of rehabilitation.

Social support was the most commonly used coping strategy and at the return to sport phase was used by all five participants. Social support from a variety of sources appeared to be instrumental in boosting morale and encouraging adherence and played an important part in their successful return to sport (Carson and Polman, 2008).

Participant 3's use of goal setting as a coping strategy yielded valuable information. Although he was the only person to employ this strategy, he reported that he found it very helpful to set small manageable goals and that he achieved positive reinforcement every time he accomplished a task and helped with adherence. This finding has important implications for the management of injury from the point of view of providing positive psychological reinforcement as Participant 3 appeared remotivated every time he achieved a goal. This was also evident in Evans et al (2002) study who found that the use of goal setting helped with adherence to the programme.

Self-talk was employed by three of the participants as a coping strategy at each phase. Self-talk seemed to be used primarily for self-motivation purposes (Tod et al, 2011) whilst performing difficult tasks. Imagery was only employed in the return to sport phase by two participants in order to help relaxation and mental preparation.

The current study lends support to Wiese-Bjornstal et al's (1998) model which proposes that personal, situational and physical variables may influence the thought processes and the emotional and behavioural responses of the athletes. A positive

cognitive appraisal and emotional response to the injury is influenced by for example, the assessment of the injury as being minor (personal variable) leading to strong adherence. Participant 3's adherence behaviour illustrates the point above as his initial cognitive interpretation of the injury in terms of personal variables was that the rate of recovery was not long and that it was not a severe injury. He also had large amounts of social support available to him. The positive emotional response to injury and the use of coping strategies, manifests itself in strong levels of adherence, which was evident in Participant 3. However, the opposite effect was seen in Participant 4. Personal factors which may have caused her to cognitively appraise her injury in a negative way was that her injury was severe, her previous injury history and her loss of athletic identity, in this case her captaincy as a result. Therefore, this resulted in her struggling to adhere but she achieved recovery with the help of coping strategies.

An idea for future research which stems from this study is that practitioners should consider when designing a rehabilitation programme is which coping strategies are most effective at the different stages of the injury process. It is important that practitioners reflect on how to use these coping strategies in the most beneficial way in order to facilitate adherence to a rehabilitation programme.

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APPENDICES

APPENDIX A

Participant Information Sheet

Title of Project: The effect of coping strategies on non-elite athlete's adherence to the rehabilitation

Background

This research aims to find out whether non-elite athletes use and adhere to coping strategies akin to their elite counterparts as detailed in the literature, when undergoing rehabilitation for an injury. Recent research points to a better outcome for the injured athlete when the rehabilitation process includes both physiological interventions as well as educating injured sportspeople in the psychological skills necessary to cope with the mental distress associated with such injury. It is hoped that this study will contribute to the body of knowledge on how injured non-elite athletes cope with the adverse psychological effects of injury throughout the rehabilitation process.

Your participation in the research project

This study requires five injured athletes and so you have been asked to take part in this research project because it is beneficial towards the study and it is thought that you will benefit as a result as well.

What would happen if you agree to participate in this research study?

If you agree to take part in this study, there are two main things that will happen.

1. You will be asked to attend a semi-structured interview every two to three weeks that should last roughly 30-45 minutes and will consist of questions relevant to the research topic. The interview will be tape recorded and the researcher may also write down notes.

Are there any risks?

We do not think there are any significant risks to yourself from taking part in this study. In any case, you should not do anything that you do not want to do or feel uncomfortable with. If at any point throughout the study you feel that there is a risk involved towards yourself, please inform the researcher immediately. Should you wish to, you are also free to withdraw from the study at any time, without giving any reason.

What happens to the results of the study?

The information collected from yourself throughout the study will be stored securely on a password protected computer which can only be accessed by the researcher and by the researcher's supervisor. All the information gathered will be coded so that the researcher can remove names, but will need to keep a record of the codes to know whose information the researcher will be looking at is. The researcher will present this information together for all participants, but there will be no description that would identify individuals. All the results collected from this study will be presented in the researcher's final year dissertation report.

Are there any benefits from taking part?

Yes, as you will be part of a dissertation. This will help you understand how a dissertation is run and may give you key ideas for when you come to your dissertation proposal. You will also gain knowledge into interviews. Another benefit of taking part is that you will hopefully find out which coping strategies you have used throughout the rehabilitation process that you may have not realised that you used in the first place.

What happens next?

With this letter you will find a consent form for yourself. This consent form states that you are confirming, once signed, that you are willing to take part in this study. Once completed, please hand back to the person in charge of the research study in order for you to start participation as soon as possible.

How we protect your privacy

As you can see, everyone working on the study will respect your privacy. We have taken very careful steps to make sure that you cannot be identified from any of the information that we have about you.

All the information about you will be stored securely away from the consent form. At the end of the study we will destroy the information we have gathered about you. We will only keep the consent forms with your name.

Further information

If you have any questions about the research or how we intend to conduct the study, please contact us.

Name: James Llewellyn-Matthews

Role: Researcher

Email address: @cardiffmet.ac.uk

APPENDIX B

PARTICIPANT CONSENT FORM

Reference Number:

Participant name or Study ID Number:

Title of Project: The effect of coping strategies on non-elite athlete's adherence to the rehabilitation process.

Name of Researcher: James Llewellyn-Matthews

Participant to complete this section: Please initial each box.

1. I confirm that I have read and understand the information sheet for the above study. ☐
2. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
3. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason. ☐
4. I agree to the interview being audio recorded ☐
5. I agree that direct quotations may be used from the transcripts in the write up of this project providing that I cannot be identified from them. ☐
6. I agree to take part in the above study. ☐

Signature of Participant Date

_____ _____

Name of person taking consent Date

_____ _____

Signature of person taking consent

_____

APPENDIX C

Interview Guide

Background Information

1. How are you today?

2. Could you please state what sport you are currently participating in?

    - *How did you start participating in this sport?*
    - *When did you start participating in this sport?*

3. At what level are you competing at?

4. Do you take part in any other sport?

    - *If so, please state what other sports you take part in?*

5. Could you describe to me how you have sustained your injury?

    - *What was the severity of the injury?*
    - *What was your initial thoughts once the injury had occurred?*
    - *How were you feeling when the injury had occurred?*

6. Before your injury occurred, could you please state how often you trained throughout the week for your sport, for example, how many days you spent training and the hours spent outside of training?

    - *Reason for this is to show how committed they were before the rehabilitation programme.*

7. Have you had any previous injuries similar to the one that you have sustained now that has kept you from playing sport for a period longer than four weeks?
    - *If so, how was this injury sustained and when?*

Coping Related

8. How have you been coping since the injury occurred?

    - *Are there any stressors (something that is worrying you, source of stress, e.g., money, family pressures, feelings, participation in sport) that you have faced since the injury?*
    - *If so, how have these stressors been affecting you?*

9. Do you feel that you are in control of these stressors mentioned?

- *If not, why?*
- *If so, how are you managing these stressors?*

10. What steps have you taken to deal with the stressors that we have just talked about?

    - *Are there any strategies that you have used specifically towards certain stressors?*
    - *If so, why do you think you used this strategy for this particular stressor?*

11. Are there any coping strategies that you have used to manage these stressors, for example, self-talk, imagery, etc.?

    - *If so, please state what coping strategies you have used?*
    - *Which coping strategies have been particularly effective for you?*
    - *Why do you think these strategies have been particularly effective/helpful for you?*

12. Are there any coping strategies that you have tried to incorporate but have not been very effective or helpful for you?
    - *If so, why do you believe these strategies have not been very helpful for you?*

13. Have you sought any support from certain individuals in your life since the injury has occurred, for example, teammates, coaches or family members?

    - *If so, who have you sought support from?*
    - *Is there any reason why you have chosen support from these certain individuals?*
    - *What type of support has each individual provided to you?*

14. Are there any active steps that you have taken since the occurrence of the injury that you have used to help cope with the injury, e.g., mentally?

    - *If so, could you please elaborate on how this has helped you?*

15. If the participant does have a reoccurring injury, ask how they dealt with the injury before.

    - *If so, ask if they used any coping strategies to help deal with their rehabilitation programme.*

16. Has there been at any point since the injury, that you have tried to forget about or put the injury towards the back of your mind?

- *If so, why do you believe that you are doing this?*

Rehabilitation and Adherence Towards Programme

17. What were your feelings and thoughts when you started your rehabilitation programme?

    - *Were you confident in what you have been advised to do throughout the programme so far?*
    - *If yes, does this make you feel good so far about your rehabilitation?*

18. How are you finding your rehabilitation programme so far?

    - *Who set up this programme for you?*

19. Do you believe that you are adhering to the programme at this time?

    - *If yes, are there any strategies or techniques that you believe are helping you to adhere to the programme?*
    - *If not, are there any reasons why you are not adhering to the programme?*
    - *If there are, how are these affecting your adherence?*

20. Are there times where you find it difficult to stick to the programme?

    - *If so, what strategies have you used to help you try and stay on track with the programme?*

21. Looking back at the stressors that we spoke about in the first part of the interview, do you believe any of these stressors have an impact on your adherence to the rehabilitation itself?

    - *If so, how have these stressors affected you?*
    - *Why do you these stressors are affecting you?*
    - *Are there any strategies that you have tried to incorporate to overcome any of these stressors?*

22. Have you experienced any setbacks yet throughout the rehabilitation programme?

    - *If so, how has this affected you emotionally?*
    - *How has this affected your adherence to the programme?*
    - *Is there anyone that you have looked to for support at this point, such as coaches, parents, friends, etc.?*

23. When you were given your rehabilitation programme, were you only given information about the physical healing of your injury or were you also given information on the psychological side of healing?

24. What are your thoughts of when you think about returning to playing sport again?

APPENDIX D

Interview Transcript

Participant 3 First Interview

Interviewer (Bold)

Introduction

- **How are you doing today?**

Fine thanks. Yourself?

- **Yes, I'm good thank you. The first section is going to look over the background information so what sport you are in and how you have sustained your current injury. So the first question is what sport do you currently participate in?**

Umm, I currently play football for in the university.

- **And when did you start participating in this sport?**

As in beginning of university or?

- **No, as in first started.**

Well, I started playing at the age of ten I did.

- **And why did you start participating?**

Umm, just got involved as a kid. Someone took me training before, my dad took me and just got into it ever since and having stopped playing.

- **And you said that you're just competing at university level at the minute.**

At the minute yeah.

- **And do you take part in any other sports aside from football.**

No, aside from football.

- **Okay then, could you please describe how you sustained your injury then?**

Umm, I sustained my injury by a tackle. An opposing player came in from the side and he completely missed the ball and took my ankle and put an external pressure on my ankle which turned into my ankle rolling over.

- **Okay, so what is the severity of the injury?**

At the minute I've been told that it is bit of a sprain to my ankle and I'm looking at about three to four weeks out.

- **So, when you got tackled what were your initial thoughts?**

Umm, my initial thoughts were just pain and thought that I could not carry on. It was too painful to carry on.

- **Okay, so how were you feeling when the injury occurred when you found out that you would be out for three to four weeks?**

Umm, pretty down. Obviously because you know that you, well it's just the downing feeling that you can't play for three to four weeks and you see everyone playing and trying you know just to rest. You just don't feel great to be honest.

- **So, before the injury occurred, could you state how often you would train throughout the week for your sport, for example, how many days you spent training and the hours outside of training?**

Training would be on every Tuesday and Friday night and that consisted of two hours, from seven until nine. Obviously we would play on a Wednesday then, so that's about a ninety-minute game and then obviously I would do gym work outside which is probably about an hour each day.

- **Okay, and have you had any previous injuries similar to the one that you have just sustained that kept you out of sport for longer than four weeks?**

No, I believe I haven't had nothing. This is the first proper one so.

- **So, this is new to you then?**

Yeah.

Section Two - Coping Related

- **So, were going to go onto the coping related questions now. So if there is anything that you do not understand just ask. So, umm, how have you been coping since the injury has occurred?**

Umm, I guess alright in a way. I don't really know how to cope with it because this being my first injury and obviously I've never been out before so I don't really know how to cope with it at the minute.

- **Are there any stressors that you are facing at the minute?**

Umm, I guess something that obviously you have your university work and everything like that but it's just the stressors is not training so I feel that if I do not train for three to four weeks then you know that my fitness will go down and everything then it worries me about getting back into the team and how long it will take me to get back into the team so I guess that's one of the stressors that bothers me.

- **So you would say that, how would you say that is affecting you. Worrying is it?**

It is worrying yeah. It's the fact of maybe not getting back in the team or maybe being dropped and taking it a while to get back into playing is the stressor.

- **Would you say that you are feeling in control of these stressors at the minute?**

Umm, I guess yes and no. As I said they have different effects. How you feel on the day and I said maybe it's worse when you see the boys training and not playing, it makes you feel a lot worse because you know that you see the person who has replaced you in the team as your injured and if there playing well your wondering if they'll beat you so beat you to your position maybe and not getting back in so maybe watching that I don't feel in control but then sometimes if I don't see anything then I am but not one hundred percent sure.

- **Okay, so with that in mind would you say that there are any steps you've taken to try and deal with the stressors that you have just talked about?**

No, not that I can really think off. Just like I said, because it's never happened before I just try and get on with it and do whatever.

- **What coping strategies have you tried to use to cope with these stressors?**

As in by coping strategies you mean?

- **So, umm, examples would be imagery, self-talk, that sort of strategies.**

Umm, I haven't used any of them. Probably the only thing to help me cope is probably just as in family and friends so I guess social support. That's probably the only thing I use. I've never thought of the others.

- **Why would you say that you've used social support then? Is it something you've used or something that has been given to you?**

Umm, no I guess that just something that I use and in both a way because as I said I've never had the injury before so it's just people supporting me so the boys, the teammates are just saying don't worry it'll be alright, you'll get back and everything so I guess that's just half and half in a way.

- **Okay, so going from that point, what type of support have your family given you and then the same with your teammates?**

Family it's just saying don't worry about it saying that obviously we said earlier about the position in the team or maybe not getting back in. You know family has just said don't worry about it, umm, just try and keep going and keep doing what you are doing to get back from injury and hopefully that everything will be fine. Teammates then just you know support saying, asking how I am. Every day asking how I'm feeling and everything and again telling me not to worry about position and everything and that I'll come back into the team and told me it'll be a matter of time before I'm back from injury that's all.

- **Even though you only said you think you've only used social support, do you believe there is any other coping techniques that you have tried to use but you may not off have thought that you were using?**

Umm, that mainly. I can't think of anything else. As I said I haven't given any other strategies, I haven't been given really any. Like I said I'll perseverance and help off others.

- **Has there been at any point since this injury that you have tried to just completely forget about it or put it into the back of your head?**

Umm, I guess I've tried to. I guess at the beginning when it happened, with the injury not happening before you just think you know your just like ahh, it hasn't happened. I'll be back in a week or so but then you put that in the back of your mind thinking that you'll be alright and then you start, you realise then you try to do things that you did a week ago when you were fully fit and you can't do them. You start to realise maybe that it is as bad as they say so initially it does go into the back of your mind thinking you're alright but then when you release that you can't perform the attributes you need to its bit of a struggle then until it does come back but I have tried yes.

Section Three - Rehabilitation and Adherence to The Programme

- **The next section we are going onto is about your rehabilitation programme so, umm, what were you feeling when you started your rehabilitation programme?**

Umm, a bit of both feelings. Because I have never been on a rehab programme before, so it's very different. You know going from doing sport specific exercise, you know just normal training for football to know little strengthening exercises and session training. It's very strange but again that's, I like it because it's interesting to find out how you do improve and how you get back. You can't just rest for a month and then go back to playing whereas now you've got a programme to follow and you understand why you need to do it to get back to fitness.

- **Okay, would you say that you are confident in what you have been given?**

Yeah, it's seems really good and like I said, I've never been in one before I have faith in the person that has given it to me so I'm one hundred percent confident coming back to where I want to be.

- **Does this make you feel good that you feel confident in your programme?**

Yeah, like I said so far it's been pretty good, umm, you know like I said I feel it get stronger and get better and it does make me feel good. Yeah, I feel that it is working.

- **So, who set up this program for you?**

One of the physiotherapists in our university from the, they've got a sports massage clinic like physio massage clinic and they created a programme for me and the football coach has given that to me from them.

- **Do you believe that you are adhering to the programme at this time?**

Yeah, so far. Like I said because the injury hasn't happened before I know that they've said to do, if you want to get back to one hundred percent fully fit you have should stick to this programme so umm, I'm just carrying on with it and sticking to at it and going with it because that's what they've said and that's what I believe. I believe in them so hopefully it goes well. I'm sticking to it.

- **Okay, so going onto like the exercises that they've given you and everything and time management, would you say that you understand what they have given to you or is there grey areas?**

At the minute I understand it all because like the only strength and exercises and proprioceptive exercises they've, my first one, the first start of the session someone was there to help me go through the programme and helped me to go through the exercises to help me understand and even though they are not there all the time they say don't go to less or to. Don't try and do less and get away with it because it's not going to really help you. I do everything that I can and they've shown me how to do it so yeah I'd say it's okay so far.

- **Would you say that at any point that it is difficult to stick to?**

Yeah sometimes, like you said when I said about moods and everything. You get up sometimes and you think, ahh, I've got to do this again now and it's still you may think it's still a while to go to get back. Yeah, it does get to down, umm, you think why I'm I doing it if you don't feel, umm, you know obviously if you feel improvements but then you think it's the same, why I'm I doing it but they've told me to do it. I

believe in them and I guess you see the improvement so if you feel that if you get improvements in the beginning you just got to keep sticking to it and that you got to keep going until you finish it.

- **Going back to the stressors that we spoke about in the first part of the interview, do you believe any of these stressors have an effect on your adherence to the programme?**

Umm, sometimes I guess. Like I said them, sometimes the university work makes you feel like you don't have time to do it and that it's bit of a squeeze to get it all in. Bit in a way the stressor of seeing everyone training and wanting to play back like back in the game, maybe it does help sometimes because you feel that you're worrying about not playing and not training sorry, it will make you want to do the rehab programme even more so you can get back into that environment off training again with all your teammates and getting back into games so sometimes even though it is just a stressor in everyday life I guess it could help as in adhering to the programme as you know you want to get back to playing and training again.

- **Have you experienced any setbacks yet?**

Umm, not at the minute it's just been like I said just university work and trying to strengthen and improve proprioperception in the area that I am injured so at the minute it's not too bad.

- **So, when you were first given your rehabilitation programme obviously they focused on the physical side of healing but would you say that there was at any point that they helped you psychologically or tried to give you strategies?**

No not really. I haven't been given any strategies or anything except the programme it just a physical programme to improve the injured area. Maybe going back to social support, maybe the physio and maybe the coaches have given me a little bit of support now and then, you know they've come in one of my rehab and seen me do my rehab programme in the training facility and they've just come over and said hello, how are you doing, this gives me some support or the coach or physio has said don't worry you'll be back soon and everything so they've given me some social support now and again but not any other coping techniques.

- **Last question, what are your thoughts of when you think about going back to playing again?**

Umm, I guess it's a bit of two different things really. First off is like excited to get back. Obviously being out for quite a while, you do tend to miss everything you know not even just playing but you miss being with your teammates. Not going trips, away games, stuff like that so I guess it's exciting for me to get back playing you know like it's just the touch of a ball or being able to pass the ball and everything gets you excited and back playing. But then obviously you have the fear of if you know like the injury happened to me from a tackle, you're always worried about, well I know I'll always probably be worried it happening again so as if to say not even a tackle, what if I was to go back onto the pitch and five minutes into the game running and I turn and twist my ankle, how long I'm I going to be out for. Is it going to happen again or I'm I going to be out for another month or longer again. So I guess you look forward to going back but you always have the fear off this injury happening again and reoccurring again and being out for a longer period of time and obviously then being out longer again will make you worry because it's been pretty bad as far as it is. So I don't want to be out longer so you worry about what could happen again.

- **Okay, thank you.**

APPENDIX E

Onset of Injury Themes – First Interview

Theme 1: Athlete's first thoughts when injury occurred.

Higher Order Theme	1st Order Theme	Raw Data
Negative First Thoughts	Frustration	"Frustration because it was sort of early in the season. I was playing quite well as well. Mostly frustration". (Participant 1)
	Pretty Down	"Pretty down. Obviously because you know that you, well it's just the downing feeling that you can't play for three to four weeks and you see everyone playing and trying you know just to rest". (Participant 3) "Just made me feel a bit down about it because obviously playing well and then injuring myself, going to lose a bit of form as well so obviously just feel a little disappointed about it". (Participant 5)
	Annoyed	"I was annoyed because it was my own fault, sort of, when I first got proper injury, it was my own fault so I was annoyed". (Participant 4)

Theme 2: Stressors affecting athletes

Higher Order Theme	1st Order Theme	Raw Data
Stressors experienced	Incapacitation	"Probably just the usual frustration, umm, yeah mobility, having to look at and use social support to help me get around, yeah". (Participant 1) "Current stressors are movement with the leg. Yeah, range of movement within my hamstring, umm, just getting around". (Participant 5)
	Isolation	""I think if I could do my rehab there where there is other people doing it as well, then it would be more motivating than just being sat at home or going to the gym on your own and doing it yourself". (Participant 3)

Theme 3: Coping strategies

Higher Order Theme	1st Order Theme	2nd Order Theme	Raw Data
Coping Strategies	Social Support	Family	"Initially my mum and dad would text me because they're at home, hope you're okay, blah, blah, blah, blah because there's not much that they can do from home really, umm, but they were always texting me". (Participant 2)
			"Probably the only thing to help me cope is probably just as in family so I guess social support. That's probably the only thing I use". (Participant 3)
			"My parents, obviously it comes naturally with them giving you some support". (Participant 5)
		House Mates	"Yeah, I've sort of been, umm, relying on house mates and because I'm far from home so family aren't around but they've tried to help as much as they can". (Participant 1)
			"My housemates when I initially sustained the injury, obviously I couldn't walk properly so they would kind of help me like make dinner and clean up the saucepan and bring stuff down the stairs and stuff like that". (Participant 2)
		Coaches	"I had like coaches and managers being involved, helping me, encouraging me to come to training and watch so a lot of social support from parents as well. One of the coaches you know texts you asking how are things. One of the managers wasn't but so yeah overall coaches have been good to text me to come to games and stuff like that". (Participant 5)
	Self-Talk		"Use a bit of self-talk. Just constantly remind myself that it happens to everyone, injuries are just part of the game and that as long as I follow the rehab plan that has been set I should be back playing before the end of the season". (Participant 1)
			"Self-talk, just like being able to from like your room to downstairs, just saying to

	yourself come on you can get down the stairs sort of thing". (Participant 2) "Self-talk and just sort of deal with the pain and just do this or do that. That helps". (Participant 4)

Mid-Point of Rehabilitation Themes – Second Interview

Theme 4: Stressors affecting athletes

Higher Order Themes	1st Order Themes	Raw Data
Stressors	Not being able to participate	"Yeah sort of thing because I can't play or train so it's sort of like a sort of think about you try to ignore otherwise you'll over think it, get to worried but it's something that's constantly there the fact that I'm not sort of training. Still can't train so it's still frustrating". "Especially still not being able to play and not being able to play. That's still affecting me quite a bit to be honest". (Participant 5)
	Social comparison	"I said even though that we are in to recovery now and everything is going well so far there's always in the back of your mind that you could have some setbacks or someone has been playing well in the team and you may not get back in straight away so I guess it's there now and again". (Participant 3)
	Mobility	"Mobility is still a bit of a pain. Like, get pain in it sometimes. But yeah, less burden as I can start to do stuff for myself". (Participant 1) "With the movement in the knee it's just frustrating not being able to get to places that I want to and walking around university, etc.". (Participant 5)

Theme 5: Coping Strategies

High Order Theme	2nd Order Theme	1st Order Theme	Raw Data
Coping Strategies	Goal Setting		""My physio has given me, we've set different goals to achieve so just like, there like little goals of exercise they've given me so like getting to a certain amount of either repetitions or you know distance in a jump maybe and seeing if we can reach that and obviously if I can reach that we set new goals of increasing it, you know increasing reps or increasing distance or strength or what so I guess that's what we've done so far. If you can reach short term goals that then builds into the long term goals and once you achieve a short term goal you just think that everything is working and going right, you know the programme is doing well so the short term goals is like you say little barriers that you just keep on knocking down". (Participant 3)
	Self-Talk	Calming themselves down	"Sort of calm myself down and understand what's going on not just, I know more than I'm just in pain". (Participant 4)
		Push through rehabilitation sessions	"More so in the gym, so we go in and wait for the physio and then just talking to myself saying that I can do all the things that I used to be able to do, just to reassure myself that I can". (Participant 1)
			"Yeah, I mean like self-talk really, just tell yourself really just to man up and just get over it because no one is going to get over it for you so you just have to get over it yourself really. Anyone can do it but you so". (Participant 2)
	Social Support	Family Members	"I think it's good just to have like anyone around you to help you get through it you know because it can, you sometimes feel that it is just you but we obviously said you have your family and stuff you know they say that even they're back home they say you'll be back and everything. Like I said I think the family is more like the general support just umm, like I said not to worry and stuff like that and everything will be fine". (Participant 3)
			"Parents I suppose they've been helping me out as well and brothers, they've been helping as well. My family have just been at home making me sort of stick to my rehabilitation as in doing the prescribed programme at home, like stretching and stuff like that and they keep reminding me which has helped because it gives you a bit of a boost, a bit of motivation to do it. If I'm in the house and I've missed it my dad usually knows so my

	dad will tell me to do it and give me a bit of motivation to actually do it". (Participant 5)
Team mates	"You have your teammates, like I know we say about getting g back into the playing position and stuff, you know even the person who is in your position, he is even still helping you and giving you support as well saying that come back, come back strong and fit as you can but everyone needs, you know you don't just have one person in one position you know. You need everyone in the team to work well and they've all been quite supportive of getting back yeah. Your teammates are more sports specific not in a way your family would just because your there and you see them every day you know when you get the support you go and watch training sometimes and their there talking to you and everything so it's kind of similar but like I said because you're with them training, your practically with them every day it's a bit different that's all". (Participant 3)
Coaches	"I've just been looking at a bit of social support from the coaches. Just using coaches to umm, help encourage me to come to training and inviting me to watch the games and being in the changing rooms and stuff like that which helps, I think without that it would be a lot more difficult so that does help. The coaches, they're main thing has just been inviting me to games and training. That's really helped because it makes you still feel involved with the team and stuff like that. Umm, and I suppose the coaches are there. They'll text me saying like we need you back and stuff like that and when I do read those texts saying to get back into the sport it makes me want to do the rehabilitation". (Participant 5)

Theme 6: Adherence towards rehabilitation programme

Higher Order Theme	2nd Order Theme	1st Order Theme	Raw Data
Adherence Levels	Adhering Well	Goal Setting	"Yes. Since the last time, it sorts of flared up a couple more times after that but nothing in the last week or so yeah I'm sticking to it". (Participant 1)
			"Yeah it's good because you see, because you see progress like I said about the short term goals being achieved you just keep going you know, feeling like just keep achieving the goals as much as you can. Just keep getting to each one, trying to beat them down. So I guess I am sticking to it quite well because I can see progress and I don't really want to, I don't really want to stop know. I just want to go and complete it and come back fully strengthened and everything". (Participant 3)
			"Yeah, I would say that I was. Yeah, like some days at home you just watching football or you just gone to watch the football and then it's just frustrating to come back and do the rehabilitation so sometimes I do miss the odd stretching session or something like that, yeah home exercises".
	Not Adhering Well		"Yeah, pretty much because I think, I was more so before because all the exercises were based from home so there was no excuse not to do them whereas know the basic ones I should be doing but the others are all like gym based and I don't have a gym membership so like I'll pay to go but then I'm just not adhering to it as much as I was". (Participant 2)
		Lack of Results	"it's probably not what it should be, again I'm sort of my own worst enemy in the sense that once I get over something I get bored of it then my adherence to it completely drops which then I don't get the results and then I blame someone else for it, then umm, so that definitely could be better sort of stick to the programme more, maybe get results quicker but I'm so impatient. If I don't see something straight away then I just over, I don't think it works". (Participant 4)

Theme 8: Coping Strategies

Higher Order Themes	2nd Order Themes	1st Order Themes	Raw Data
Coping Strategies	Imagery	Calming Themselves Down	"We also did a lot of imagery and other sort of steps like that to help calm myself down and a little bit so I spoke to a sports psychologist a little bit about dealing with those sort of pressures and stressors. It just helped me because as my injuries were healing it's abler to see you know myself fixed whereas when we last spoke I was sort of bang in the middle, it wasn't going very well so there was no way of seeing myself you know imaging myself heal, not injured or anything so imagery was helpful towards the end of the programme when I could actually see myself getting back into playing and getting back you know in the team role and stuff like that so definitely the end it helped. (Participant 4)
		Mentally Prepare	"Before the games it just helped me focus and get my mentally, mental game okay because my physical had been approving over the rehab process and recovery had finished so I needed to get mentally ready for games and training so self-talk just before training, imagery of striking the ball helped yeah. Yeah as like when it comes closer to the games and training they helped quite a lot, not so much at the start because it was more physical but as I got closer is to more in my mental head that I was still injured but these were helping me to say I wasn't. (Participant 5)
	Self-Talk	Reassurance	"You know still talking to myself in the gym and during training sessions now because I've started to go back so just doing a little bit". (Participant 1)
			"Yeah I'm still using self-talk. Mainly just reassurance because like I know I can do it. It's just sort of telling myself that I can and like if I have a bad moment where I think that something is going to go wrong it's just reassurance that it's not, that I'm fine and ready to go. I would say just pretty much as the same before, I like doing the exercise circuits I like somethings obviously feel

		easy to do know but others things obviously like hard when you think they shouldn't be so just saying like either lift a higher weight or something like you should do it because it will help you to do whatever so". (Participant 2)
		"Yeah, started using a bit of self-talk just for the games and also in the warm-up". (Participant 5)
Social Support	Family	"A bit of social support. Yeah relying on family. Been relying more sort of family". (Participant 1)
	Coaches	"With my coach as well just making sure that you know things hadn't changed to much since I'd been away". (Participant 4)
		"Yeah just coaches talking to me. It was like from training and stuff where coaches and just going to training the coach would just text me to just turn up to training and then that would give me confidence, you'd still feel a part of the team and then as I got closer to recovering they started asking me to play which motivated me to for a speedy recovery". (Participant 5)
	Team Mates	"I have the opportunity to shoot with the girls there as a form of social support I guess and it's just nice to be back involved with them and seeing them more often again sort of thing". (Participant 2)
		"Like I said it's more or less like sport specific help so you stick to the football boys and everything. They tell you everything will be fine but leading up to the end thing like you said first training session back was great because you obviously see the boys but you don't know how it'll be when you get back into training but yeah great support. Letting me straight back in, there was no problems, nothing, always encouraging if I made a mistake or I felt that I couldn't do it, they just like you know don't worry just do what you can and then when you feel you can do it come back in. So yeah it's been really good." (Participant 3)
		"Getting back into the team and talking to my vice-captain as well about integrating

Goal Setting	back into the team and getting back into my role of captain". (Participant 4) "We just stuck to the short term and long term goals to make sure that progression was going well and just with mainly in training as well, just using those goals, like with the coach and the boys just being able to do certain drills or you know like turning and cutting and everything. Just getting used to those movements again and seeing how different ones, how I reacted to each one and so just setting goals for them. Yeah they have been. Like we obviously said the long term goal is the big picture that you aim for to complete and finish it and the short term goals were allowing me to as if a bit of a piece of the puzzle, it was just putting each piece into the picture to fully complete it. So yeah once you like you said achieve the short term goals it was nice to see that it was getting nearer and nearer to the bigger picture really". (Participant 3)

Theme 9: Adherence towards rehabilitation programme

Higher Order Theme	2nd Order Theme	1st Order Theme	Raw Data
Adherence Levels	Adhering Well		"Yeah stuck to it pretty much whole way through. There's been days where you just don't fancy doing it but yeah it's been good". (Participant 1)
		Help of Social Support	"Better now than it was kind of a few weeks back before I had the opportunity to be like invited to take part in like the physio sessions programme so I think that's down to having other people there to kind of motivate you". (Participant 2)
		Help of Goal Setting	"Yeah good. It was, it's never, like I said we had those days of being tired and stuff and you know maybe not doing as much but near the end once you see, start seeing those results and once those short term goals get even lower and you can see the long term goal is coming up it just made me push and push more and made we want, you know actually made me want to turn up and want to complete it and want to do the exercises so that umm, I could get back to where I am now and you know playing, well, love back to playing what I love doing". Participant 3)
		Help of Imagery	"A lot better. A lot more I can sort of get the stuff through imagery and I can actually see myself playing again and running without pain or that sort of stuff so a lot better. A lot more interested in recovery now". (Participant 4)
		Seeing Improvements In Injury	"Adherence probably increased because I noticed change and that motivated me then to just keep adhering to the programme. Yeah, because I was seeing improvements so I wanted to see more improvements so I did adhere and do the exercises more often". (Participant 5)

Theme 10: Usefulness of coping strategies towards adherence

Higher Order Theme	1st Order Theme	Raw Data
Usefulness of Coping Strategies Towards Adherence	Social Support	"Probably the coaches saying that I would get another shot, that's kept me pretty focused on it". (Participant 1) "It'd probably be more of the social support because it just makes you thrive to carry on you know that you know you've got everyone behind you. You've got even though your family aren't here they're always giving you the support of telling you that everything will be fine and it'll get better and you know everything, do this do that and it was good and then obviously you had the social support from your teammates because they're like you said they're there every day. and then social support has just been really good because whenever you feel down or feel that your struggling, you always, you know that you've always got someone there or a few of them there to help you no matter what and they'll, there's no trouble for them at all. They'll give you those little positive comments or attitudes that just make you think you know what it's not that long, it won't be that hard, I'll be back now so it has kind of helped you get through and push till the end". (Participant 3) "It was definitely social support around the start sort of coaches, players, friends, family. Telling me to do the exercises or come to training and little comments like that. Texts and phone calls about how the injury is so that helped me at the start of the process with my physical injury and then towards the end it was mental, social support was helpful throughout". (Participant 5)
	Self-Talk	"Yeah self-talk definitely because that was the only one I sort of really used. I haven't really used, the only thing I've really done is used self-talk or kind of put it in the back of my mind so I didn't think about it so yeah self-talk has probably been the one that has helped the most". (Participant 2)

	“Self-talk, just sort of telling myself to get a grip and to just do it because you know it could help and make you better so probably self-talk and informational support”. (Participant 4) “Self-talk helped my mental state towards getting back in to return to sport”. (Participant 5)
Goal Setting	“Like I said the goals give you something to aim for you know there always, they’re like little stepping stones that you take. Like we said till the big picture of the long term goals so they’ve been very helpful”. (Participant 3)

Theme 11: Thoughts of returning to sport

Higher Order Theme	1st Order Theme	Raw Data
Thoughts Of Returning To Sport	Fear of Re injury	"I question whether like obviously it could happen again but it could not but I question whether is it worth like playing again in case the process happens all over again and makes it worse sort of thing and then the whole process of being on crutches, being in a boot, waiting for the op, having the op and being on crutches again and stuff. I just wonder if it's worth it but obviously it depends if I have confidence in the knee at that point like I really can make that decision then but at this point I say I wouldn't go back to playing basketball maybe like going to the gym again and stuff. Definitely keeping fit but maybe not something or doing the same sport that caused it, you know what I mean". (Participant 2)
		"I think like I said before it's just, it's like a split in the mind so like your obviously standing there getting ready to come on and you feel you're really excited because you know you're going back to playing the game again and you're really excited, you know with the boys and everything but then you also have with the other half of the split mind that like the nerves of getting on and the as I said before the nerves of re injury so obviously this programme has taken a bit of time and you're always afraid of after all that work done to get back to at this moment in time, who's to say that on the pitch, five minutes later I come off again with the same injury so what happens if it re happens, the re injury again and I could be in rehab again or even longer so there was always that in my mind as well". (Participant 3)
		"Before I can remember I was very worried about re-injury and all that and know sort of going through my programme, I am still worried because the problem sort of being solved short term but I know there are steps to go through for long term recovery and I know what I can do". (Participant 4)
		"I was obviously a bit apprehensive about the injury in case of re injury but I was excited, happy and motivated to get back into playing at the same time but there was still some concern about re-injury". (Participant 5)