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**Investigating the relationship between re-injury anxiety and  
sources of confidence in injured athletes on return to  
competitive sport.**

**(Dissertation submitted under the psychology area)**

**Lowri Norkett**

**INVESTIGATING THE  
RELATIONSHIP BETWEEN RE-  
INJURY ANXIETY AND SOURCES  
OF CONFIDENCE ON RETURN TO  
COMPETITIVE SPORT**

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# ABSTRACT

The rationale to the present study was to explore the relationship between sources of confidence and re-injury anxiety in injured athletes. Injured athletes (n=50) who had been injured within the past six months and competed at club level or above, completed the Modified Sources of Confidence Questionnaire (M-SSCQ; Magyar and Duda, 2000) and the Re-Injury Anxiety Inventory (RIA; Walker, Thatcher and Lavelle, 2010). Multiple regression analysis was used to determine if any of the sources of confidence significantly predicted re-injury anxiety (Rehabilitation; intensity and frequency; Re-entry: intensity and frequency). The results identified a significant relationship between rehabilitation intensity and demonstration of ability ( $P < .01$ ). Rehabilitation frequency had significant relationships with physical self-presentation ( $P < .01$ ) and social support ( $P < .01$ ). During the return to sport phase, significant relationships were found between re-injury anxiety intensity and mastery ( $P < .01$ ), demonstration of ability ( $P < .05$ ) and leadership ( $P < .05$ ). The findings suggest certain sources are significantly more related to re-injury anxiety than others within the present study. Additionally, the findings suggest that's specific sources of confidence are significant in aiding athletes cope with the potential detrimental effects associated with re-injury anxiety. Further qualitative research is required to explain the relationship between sources of confidence and re-injury over the three distinct phases of the injury process.

# **CHAPTER 1**

# **INTRODUCTION**

## **1.1 Introduction**

Injury is an ever present feature of participants at all competitive levels. Whilst the immediate response to sustaining an injury has predominately physical, recent research has now also explored the psychological affects which an injury potentially could impact upon the injury. Psychology of injury has had increased research acknowledgement over the past decade due to its renowned influence on the athlete's recovery, and subsequent return to competitive sport (Dimmock, Miller & Podlog, 2011; Wiese-Bjornstal, 2004). One of the biggest challenges for athletes who have the misfortune to sustain injuries is to overcome re-injury anxiety during their return to competitive sport (Podog & Eklund, 2006; Wadey & Evans, 2011). In light of this, it is perhaps surprising that it has received so little attention in the research literature (Johnston & Carroll, 1998). One variable that has been consistently recognised as a facilitative factor in reducing re-injury anxiety is confidence (Anderson, 2011). To elaborate, previous research suggests, that confidence restoration is central in diminishing the likelihood of re-injury anxiety, with many reports signifying a link between confidence levels and re-injury anxiety (Arvinen-Barrow & Walker, 2013; Podlog & Eklund, 2011). Furthermore, current research has identified specific sources of confidence to be influential in facilitating a successful return to sport, thus reducing re-injury anxiety (Kingston, Lane, & Thomas, 2010). However, despite the literature supporting the role of confidence in the buffering of re-injury anxiety (Heil, 1993), the relationship between re-injury and anxiety and self-confidence remains ambiguous.

Therefore, the purpose of this study was to investigate the relationship between re-injury anxiety and sources of confidence. Fifty athletes completed the Modified Version of Sources of Sport Confidence Questionnaire (M-SSCQ; Magyar & Duda, 2000) and the Re-Injury Anxiety Inventory (RIAI; Walker, Thatcher & Lavalley, 2010). As proposed by Eisinga *et al.*, (2013), prior to commencing the data analysis, Cronbach's alpha coefficient was calculated to assess the internal consistency of the measures. Multiple regression analysis was the chosen method due to its ability to identify the amount of variance in the outcome variable, accounted for by a predictor variable (Pallant, 2008). Subsequently, SPSS was the statistical procedure utilized to facilitate the analysis of results post data collection.

# **CHAPTER 2**

# **LITERATURE REVIEW**

## **2.1 Introduction**

The following account will firstly review the psychological responses associated with athletic injury and then sport confidence. The review will be underpinned by relevant conceptual models. As a result, this will offer a valuable insight into understanding if sources of confidence can be a significant factor in diminishing re-injury anxiety in a competitive sporting environment. To conclude, this chapter will summarise the rationale for the present study.

## **2.2 Injury in Athletes**

It is common for most athletes to sustain an injury during their competitive career (Green & Weinberg, 2001), which can be a traumatic experience for athletes (Crossman, 1997). As suggested by Deutsch (1985), an injury that even temporarily stops participation will cause a disruption to one's fabric of well-being and through uncomfortable and unfamiliar demands, which may contribute to periods frustration and uncertainty (Podlog & Eklund, 2006; Tracey, 2003; Wadey & Evans, 2011). Multiple researchers have attempted to generalize the emotional response to injury, but it is inevitable the post injury responses are more complex and diverse than initially considered (Smith *et al.*, 1990).

## **2.3 Psychological Responses to injury**

A number of researchers have recognized the stress, anxiety and uncontrollable responses an athlete suffers post sustaining the injury. Early research conducted by Weiss (2003), suggested that athletes found it difficult to cope with injury itself because of diminished mobility the long and often arduous rehabilitation, and the emotions of being externally controlled by their injury. Other researchers have acknowledged that being deprived of daily exercise can have a negative psychological effect on an injured athlete. For instance, Shuer, (1997) suggested injured athletes are liable to a neurotic illness when completely deprived of exercise, due to the fixation within their sport (cited in Smith, 1990). According to Uitenbroek (1996), exercise is also acknowledged as a method by which stress can be managed and reduced, however given the physical incapacity of athletes to participate in exercise during injury, stress levels could increase and promote the development of neuroses, which as stated Little (1979) is a distressing order.

Research has increasingly acknowledged that athlete's response to injury can be temporally defined according to onset, rehabilitation and return to sport (Wadey & Evans, 2011). Athletes may experience a series of emotions, depending on their injury appraisal and stressors perceived by the athlete (Green & Weinberg, 2001). For instance, research illustrates the influence of a range of personal and situational factors on athletes' injury response. Wiese and Weiss (1987) highlighted the basic stress process model emphasizing sporting injury as a stressor that prompts a variation of cognitive appraisals. The cognitive appraisals influence ones' emotional responses, in turn also affecting behavioral responses and thus the successfulness of injury response process.

Multiple models have been proposed to explain athlete's responses to injury, of which Wiese-Bjornstal *et al.*'s (1998) integrated model of response has underpinned a great deal of contemporary research. The model considers closely both pre-injury factors and post-injury factors that influence athletes' response to injury. Pre-injury factors comprise coping, personality, history of stressors and coping resources, whilst post-injury factors comprise, situational and personal factors (e.g., injury severity, athlete identity and social support provision). Furthermore, Wiese-Bjornstal *et al.* (1998) suggested that a recurrent interaction amongst pre-injury and post-injury factors will positively influence an athlete's emotional, behavioral and cognitive response to injury, in-turn affecting the athletes physical and psychological recovery outcomes. Research suggests that the most crucial component to help aid an athlete's psychological recovery is a performers cognitive response, due to affecting an athlete's self-perception. For example, a negative appraisal towards a rehabilitation programme may be; a setback has occurred and an athlete stops adhering to the programme, whereas a positive appraisal to returning to sport may encourage adherence and compliance (Podlog & Eklund, 2007).

According to Wadey and Evans (2011), throughout the three phases of recovery, onset, rehabilitation and return to sport, an athletes cognitive appraisals will influence behavior and emotional responses. During the initial onset of the injury, responses to the injury may include anger, frustration and fluctuations. Evidence proposed by Arvinen-Barrow and Walker (2013), suggested that during this phase athletes are pre-occupied by a number of common features, they are considered some of the most intense emotions an athlete will experience during the injury process. In relation to the rehabilitation phase, feelings of uncertainty and tension have been reported to replace impatience and apprehension (Kolt, 2000). Similarly, Eklund and Tenenbaum (2011) established that multiple athletes are

disposed to phases of frustration as they acknowledge the unpredictability of the rehabilitation process.

Of the three phases of recovery the return to sport phase has received the greatest research attention (Ford *et al.*, 2010). Athletes may encounter multiple demands during the return to sport phase, of which could be integrated into three continual themes: re-injury anxiety, apprehension of returning to sport, and attaining pre-injury fitness levels (Bianco *et al.* 1999; Eklund & Podlog, 2006). Bandura and Wood (1989) suggested these specific demands are primarily determined by one's confidence, with athletes who exhibit a strong belief in their ability to recover and cope better with the demands of the injury process (Creswell & Hodge, 2004). Indeed, confidence has been identified as a vital requisite when returning to sport (Johnston & Carroll, 1988).

Primarily, one's choice to return to sport has habitually been established on the basis of one's physical ability (Podlog, Dimmock & Miller, 2010), however the consciousness of discrepancies between psychological and physical readiness to return to sport, now seems to delay the anticipated return to sport schedule (Crossman 1997; Glazer, 2009; Wadey & Evans, 2011).

## **2.4 Re-injury Anxiety**

In relation to the psychological demands during the injury process, research from anecdotal reports, suggest that an injured athlete is inclined to have anxieties concerning re-injury (Crossman, 1997; Podlog & Eklund, 2006), as returning to sport has been proposed as the most intimidating prospect for athletes. (Andersen, 2001; Gallagher & Gardner, 2007; Podlog & Eklund, 2006). Although research concerning the effects of re-injury anxiety is limited, athletes commonly report negative return to sport experiences (Heil, 1993). The most common re-injury signs athletes may experience include, increased negative emotions leading up to the conclusion of rehabilitation, insignificant adherence, hesitancy in performing sport-specific skills (Heil,1993). A form of re-injury anxiety may develop through diminished confidence in the injured limb and will frequently transpire if problems occurred during rehabilitation (e.g., set-backs), in which hindered the recovery process both physically and psychologically (Taylor & Taylor, 1997). According to Johnston and Carroll (1998), re-injury anxiety is commonly recognized to manifest itself in a number of ways, namely; over exaggerated taping of the injured limb, hesitation,

reduced intensity, uncertainty of completing the component that caused the initial injury. For example, an athlete may experience re-injury anxiety, because of feeling hesitant in performing a tackle with the limb that previously sustained the injury.

Psychologists understanding of "anxiety" is that it is a multidimensional construct, which comprise two significant factors; somatic and cognitive (Gould, Greenleaf & Krane, 2002). As proposed by Buckworth and Dishman (2002), cognitive anxiety is characterised by apprehension of the unknown and worry, whereas somatic anxiety is characterised by physical bodily changes (e.g., butterflies). In relation to these responses, feelings tend to evolve when an athlete experiences a sense of fear and have restricted control over the situation. As a result, re-injury anxiety can be detrimental to an athlete's psychological state (diminished self-confidence, concentration), as well as physiological state (increase in muscle tension/fatigue) (McCloy, 2004), which may hinder the progress to returning to sport.

When an athlete is in the stage of returning to sport, attention is invariably focused upon the injured area which means uncertainty concerning re-injury may possibly cause neuromuscular changes, therefore amplifying the probability of re-injury. (Podlog, Dimmock & Miller, 2011). Kvist *et al.*, (2005), examined the extent in which athletes faced fear of re-injury anxiety post sustaining an ACL reconstruction. Findings showed that 47% of athletes, who failed to return to their pre-injury activity levels actively, possessed higher levels re-injury anxiety, with diminished levels of self-confidence. Chase, Magyar and Drake, (2005) and Taylor and Taylor (1997) also support the notion that fear of re-injury produces psychological decrements such as reduced self confidence that diminish the developments that lead to the return to sport. Indeed, suggesting athletes could be predisposed to re-injury. Heil (1993) suggested that this is caused by the mechanisms that are produced, which initiate a cautious/hesitant approach towards rehabilitation and return to competitive sport. (Chase *et al.*, 2005; Johnston & Carroll, 1998; Petitpas, 1995). However, despite the return to sport phase receiving a great amount of research attention, a lack of transparency exists concerning sources of confidence in certain sports in which are more exposed to re-injury, as opposed to first-time injury (Caine & Maffulli, 2005). This is perhaps surprising given that confidence has been constantly recognised as the key component for athletes striving to return to sport (Johnston & Carroll, 1998; Magyar & Duda, 2000, Andersen, 2001).



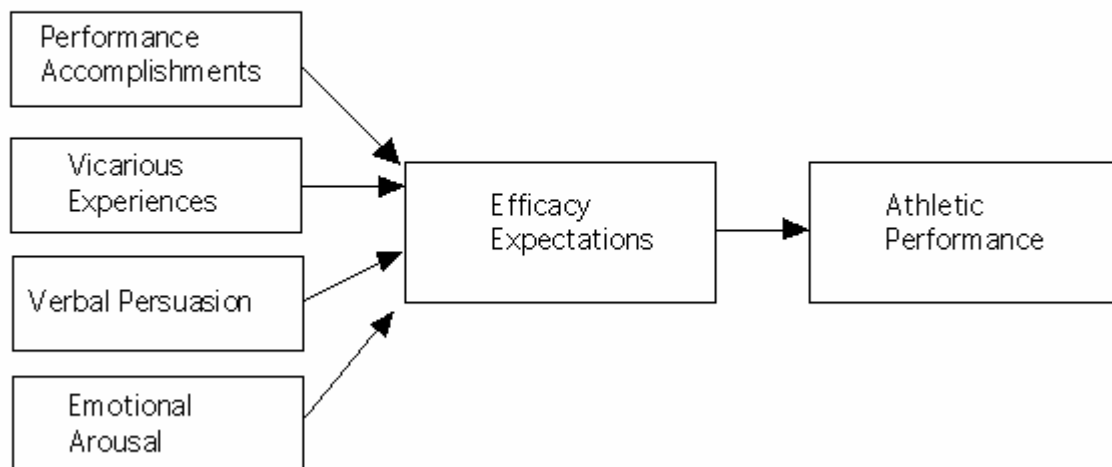
## **2.5 Self-efficacy**

Self-efficacy can be defined as an individual's perceived abilities to organize and execute an action required for a performance (Bandura, 1997), and their ability to accomplish in a given situation and at particular time (Hardy, Jones, & Gould, 1996). This is a more specific form of confidence which derives from a number of sources of information, however, self-efficacy was not initially intended for sporting contexts (Thomas, Lane & Kingston, 2011). In relation to the sporting environment, the most recurrent cognitive response because of injury leads to a decrease in self-efficacy, consequently diminishing the likelihood of a successful return to sport (Bandura, 1997; Magyar & Duda 2000).

It is distinct that the two conceptual frameworks that have received the paramount empirical research are the Self-Efficacy Theory (Bandura, 1982) and the Sport-Confidence Model (Vealey, 1986). Initially, Bandura (1977) suggested that self-efficacy was a result of four sources of information; vicarious experiences, emotional arousal and performance accomplishments (See figure 1). However, four primary sources suggested by Bandura (1977) have been continuously criticised for being too broad, and the question often arises if they could be transferable in a sport specific environment (Kingston *et al.*, 2010; Magyar & Duda, 2000). Consequently, the question has commonly been raised by multiple researchers as to whether the initial sources of self-efficacy identified by Bandura (1982) were the most significant for athletes within unique sporting environments (Magyar & Duda, 2000; Vealey, 1986).

In relation to specific sources of confidence, findings reported by Magyar & Duda (2000), found sources such as, environmental comfort and coach leadership not identified by Bandura (1997), are heavily relied upon in order to reinstate confidence during the injury process. However, amongst these sources, performance accomplishment was found to be the most salient source to enhance an athlete's efficacy during the injury process (Feltz, Landers & Raeder, 1979). Vealey and Chase (2008), agreed that this source is the most salient source of efficacy. In contrast, Magyar and Duda (2000) identified performance-related sources such as demonstration of ability as significant factors, diminishing the importance of performance accomplishment, which was primarily identified by Bandura (1997).

### Self-Efficacy Model



**Figure 1.** Bandura (1997) Self-Efficacy Model

In addition, Vealey *et al.*, (2008) established that coach leadership and social support are prominent sources. However, similarities have also been identified to Bandura's (1990) verbal persuasion source, both identifying these sources to be influential towards facilitating self-confidence. Moreover, both Bandura (1997) and Vealey *et al.* (2008) identified vicarious experience to positively impact self-confidence. According to Magyar and Duda (2000), an athlete's choice to adhere to specific sources, will be determined by multiple factors including; goal setting and recognition of achievement, therefore an individual's perception of efficacy is accountable for a positive or negative performance outcome. According to Bandura and Wood (1989), athletes with higher levels of confidence that remain task diagnostic by identifying problems that may occur in the foreseen future, will be more successful in restoring confidence. However, less confident athletes may become self-diagnostic and pay additional attention to their current injury, therefore be less likely to restore confidence effectively.

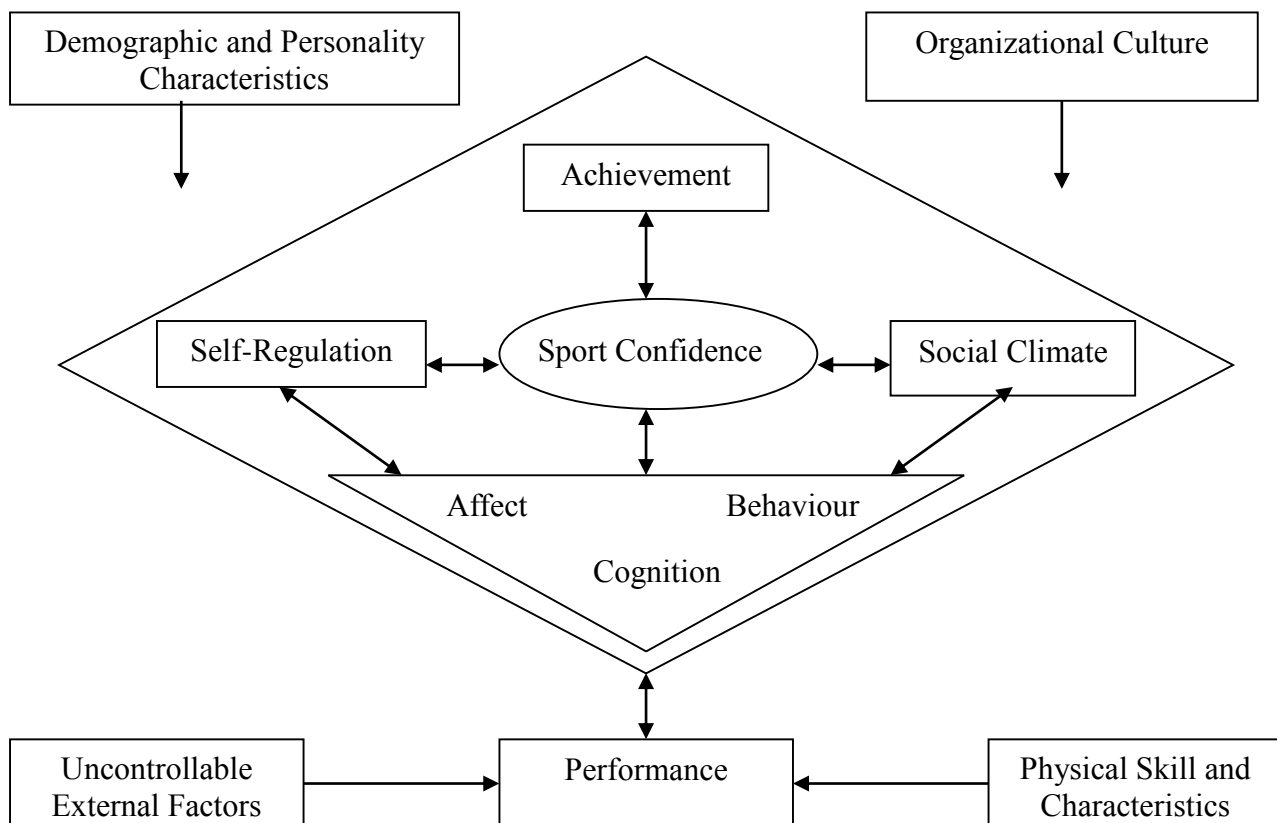
It seems that, performance-related sources are a common theme when considering the most influential source of confidence within a sporting environment. Therefore, athletes who have acquired successful mastery experiences will be liable to possess increased

self-efficacy beliefs; conversely athletes who have encountered unsuccessful experiences would become prone to diminished beliefs. In addition, one of the most reliable findings in peak performance literature is the significant correlation between successful sporting performance and self-confidence (Feltz, 2007). For instance, athletes who exhibit a strong belief in their ability to cope with varied situations during competition will be more likely to overcome heavy pressure (Cresswell & Hodge, 2004).

As a means of addressing some of the limitations of Bandura's conceptualisation of self-efficacy, Vealey (1986) developed an initial model to represent sporting contexts, that conceptualised sport-confidence into two constructs; SC-trait and SC-state in conjunction with a dispositional construct considered as competitive orientation (Vealey *et al.*, 1998). In addition to the limitations of the term "competitive orientation, Vealey (1986) proposed that the characteristics associated with an athlete's performance orientation and outcome orientation will facilitate the changes in athletes over a period of time. In terms of the predictive ability of the model, SC-trait and competitive orientation correlate to influence SC-state. However, Vealey's (1986) model received limited support of other findings about the relationship between competitive orientations and self-efficacy (Martin & Gill, 1991). In relation to the limitations of the model, it failed to take into account the athletes characteristics (i.e., sport, gender, level, age).

## **2.6 Sport confidence Model**

As a result, Vealey *et al.*, (1998) developed a more advanced reconceptualised framework, based upon a social cognitive perspective and of a multidimensional nature. This revised model focuses upon nine separate sources of sport-confidence, which fall into three broad domains (self-regulation, social climate and achievement), and have been recognised in Vealey and Chases' (2008) current reconceptualised work (see figure 1.1).



**Figure 1.1** Vealey's (2001) further revised model.

Following the establishment of the nine sources, further investigations confirmed that there were clear similarities between Bandura (1987;1994;1997) and Vealey's (1986;1998;2008) efficacy beliefs. Additionally, both authors considered performance accomplishment to be the most salient source of self-confidence (Wilson *et al.*, 2004) with vicarious experiences found to be a weaker source of efficacy due to the unreliable nature of the source; causing an ever-changing state of confidence (Vealey *et al.*, 1998; Feltz *et al.*, 2008). Vicarious experience is combined with modelling, involving observation of other performers, in order to form a personal judgment about one's performance of a task (Bandura, 1997). In addition, verbal persuasion facilitates motivational support for an athlete's effort on a realistic appraisal. According to Feltz *et al.*, (2008), verbal persuasion is an effective method for increasing efficacy beliefs from the mastery climate exposure, predominantly exhibited by leaders (Mitchell *et al.*, 2014). Furthermore, the leadership and social support sources of confidence have proven to increase one's efficacy beliefs and reduce symptoms of re-injury anxiety, because of a stress-buffering process in which decreases the impact of sport-specific stress on psychological well-being (i.e., signifying coping

strategies, helping with key decisions (Mitchell *et al.*, 2014; Rees *et al.*, 2010; Cohen & Wills, 1985).

According to Vealey (1998), the sources of confidence where an athlete experiences a sense of control (e.g., mastery and mental and physical preparation), were classified as more salient than sources that an athlete had lack of control over (e.g., physical self-presentation). Subsequently, the sources in which the athlete experiences control, will facilitate a positive influence on the performance outcome. On the contrary, Kingston *et al.*, (2010) findings suggested athletes used an uncontrollable source of confidence as the most salient source. Lastly, several factors determine the impact of physiological states on self-efficacy, of which situational favorableness is included; this source is acquired for individuals to create decisions on efficacy through cognitively appraising one's physiological state (Feltz *et al.*, 2008).

Vealey *et al.*'s., (1998) development of the Sources of Confidence Questionnaire (SSCQ), permitted sports confidence to be measured through a specific sporting context (Feltz *et al.*, 2008). Magyar and Duda (2000) adapted the Sources of Confidence Questionnaire (M-SSCQ) to be used in an injury context. Vealey *et al.*'s (1998) study identified social support, demonstration of ability, mastery, and physical self-presentation as the most significant sources from which confidence could be derived. A qualitative study was conducted by Hays *et al.*, (2007), exploring the types and sources of confidence acquired by world-class performers and supported the multidimensional conception of the construct proposed by Vealey (2001).

## **2.7 Relationship between sources of confidence and re-injury anxiety**

Consistent with previous research, many researchers have recognized the relationship between re-injury anxiety and confidence. Although, past research has directed a great deal of attention towards identifying the sources of sport-confidence and self-confidence, establishing the relationship between the two. Due to this research area being considered as reasonably new, as well as the exclusion of psychological elements, the support is restricted. Although research has emerged regarding the detrimental effects caused by increased levels of re-injury anxiety (e.g., Podlog & Eklund, 2006; Podlog *et al.*, 2011), researchers have suggested the importance of athletes managing their re-injury anxiety in order to diminish the detrimental effects. Although there is some qualitative support for the

primary sources of sport-confidence, there has been limited quantitative research exploring its role in relation to re-injury anxiety (Podlog & Eklund, 2006). Therefore, the purpose of this present study is to examine the relationship between sources of sport-confidence and re-injury anxiety.

# **CHAPTER 3**

# **METHODOLOGY**

### **3.1 Research Design**

This study adopted a quantitative based approach to generate statistical data that could be generalised to a wider population (Creswell, 2008). Questionnaires were the adopted method for data collected to enable the statistical analysis of the data to assess and analyse specific statistical relationships (Gratton & Jones, 2010). There were two specific variables that formed the basis for this research; Re-injury anxiety and Source of confidence.

### **3.2 Participants**

Participants comprised a sample of (N=50) athletes who were obligatory to meet specific criteria to address the purpose of the study. Specifically, athletes were required to (a) have sustained the injury in the past six months; (b) be competing at cub level or higher, and (c) sustained an injury as an outcome of participation in their main sport but intend to return to competitive sport post rehabilitation. The age of participants ranged from 18-23 years old (mean= 19.72, SD= 1.14) and they played both team (n=46) and individual sports (n=4). Injuries sustained included broken limbs, fractured limbs and different severity sprains. In terms of the severity of the injuries, the duration of their absence from their sport ranged from 2 weeks to 15 months (mean= 19.10, SD= 23.01). The participants were recruited from the Cardiff Metropolitan University, physiotherapy practices and two different netball teams.

### **3.3 Measures**

#### **Sources of confidence**

The Modified Sources of Self Confidence Questionnaire (M-SSCQ) (Magyar & Duda, 2000) was used to measure athlete's levels of sport confidence. Specific items were amended to certify they were suitably relevant to athletic injury, rehabilitation and returning to sport.

The M-SSCQ comprises of 43 items and nine specific subscales; mastery (e.g., "mastering or improving personal skills"), demonstration of ability (e.g., "exhibiting that I am more advanced than others"), physical/mental preparation (e.g., "preparing myself physically and mentally for my return to netball" ), physical self-presentation (e.g., "feeling



optimistic that my weight has stayed the same prior to sustaining the injury"), social support (e.g., "emotional support from my parents/friends"), vicarious experience (e.g., "seeing my friend return to competitive sport successfully after rehabilitation"), coach's leadership (e.g., "having faith in my coaches leadership skills"), environmental comfort (e.g., competing in an environment where I feel comfortable), and situational favorableness (e.g., rehabilitation is positively going in my favour). Items were responded to on a Likert scale was used to acquire confidence levels, participants were asked to rate their confidence on a scale that ranged from 0 to 7 (0 being not confident at all and 7 being excelling in confidence). Krosnick and Fabrigar (1997) suggested that a 7 point scale is the most favorable length for a rating scale. Participants responded to the statement "I usually gain/confidence in my rehabilitation program me from" in relation to each item.

The M-SSQ has been shown to be "a reliable and valid instrument to assess potential sources that are being used by athletes" (Magyar & Duda, 2000, p.386). Vealey *et al.*, (1998) reported internal reliability scores (cronbach alpha coefficients) over the nine subscales of 0.71 to 0.93. However, Magyar and Duda (2000) found inconsistent levels of reliability with discrepancies in environmental comfort, athletic trainer's leadership and situational favorableness.

### **Re-injury Anxiety**

The re-injury anxiety Inventory (RIA) (Walker *et al.*, 2010) was used to assess athletes level of re-injury anxiety. The RIAI consists of 28 items, comprising two subscales: re-injury anxiety on the return to training/competition (RIA: RE: 13) (e.g., I sense/sensed I will not perform due to re-injuring myself) and re-injury anxiety regarding rehabilitation (RIA-R: 15 items) (e.g., I feel/felt apprehensive about the process of rehabilitation). Participants were required to specify the frequency (how often) of the symptom and the symptom level (how much) on two separate Likert scales. Anxiety levels was assessed on a four point Likert scale from 0 (not at all) to 4 (very much), alternatively frequency was measured by a seven point Likert scale ranging from 1 (never) and 7 (all the time). Walker *et al.*, (2010) reported cronbach alpha coefficients of 0.98 (RIA-R) and 0.96 (RIA-RE).

### **3.4 Procedures**

Once ethical approval had been gained, the participants that met the specific sampling criteria were identified and informed of the the purpose of the study. Participants were provided with an information sheet prior to completing a consent form. Participants were encouraged to answer each question as truthfully as possible. Participants then completed the Re-Injury Anxiety Inventory (Walker *et al.*, 2010) and the Modified Sources of Sport-Confidence Questionnaire (Vealey *et al.*, 1998) at a place and time where they felt fully comfortable. All information collected for the study was kept completely confidential. The data collected from the questionnaire was then entered into the SPSS for the purpose of data analysis.

### **3.5 Data Analysis**

Acceptable internal reliability scores for all subscales M-SSCQ and RIAI were were examined using Cronbach alpha, prior to main analysis. The subscales that were considered to have significant internal consistency exposed a score of .7 and therefore applicable for the study (Kline, 1999). However, if a subscale scored below the .7 value, further investigation took place to examine whether an individual item was generating the whole subscale reliability to decrease. If an item was discovered to be the cause of a decrease in the overall reliability it was therefore removed. Following removal of unreliable items, the Cronbach's Alpha was recalculated to confirm that item removal improved the overall sub-scale reliability.

Prior to the main analysis, all underling assumptions, namely; muticollinearity, linearity, homoscedasticity, independent errors and normality was assessed to to make sure accurate results are attained (Field, 2013). According to Field (2013), multiple regression ought to be utilized when there are multiple predictor variables, which could potentially predict a specific criterion variable (Field, 2013). Therefore, the present study adopted multiple regression for its ability to identify the relationships of the independent variables (eight sources of sport-confidence) on two dependent variables (re-injury; intensity/frequency) and phases (rehabilitation and re-entry to competition). Lastly, the standardized Beta ( $\beta$ ) coefficient was analyzed to determine the unique contribution made by each predictor variable on the outcome variable. A value of ( $P < .05$ ) will be utilized to determine the significance of each regression coefficient and the model as whole, as suggested by

O'Donogue (2012). Furthermore, SPSS windows version 20 was utilised for all the aforementioned analyses.

# **CHAPTER 4**

# **RESULTS**

## 4.1 Scale Reliability

The internal reliability for each RIAI and M-SSQ subscale was calculated through the use of Cronbach's alpha. As proposed by Nunnally (1978), an internal consistency score is deemed acceptable when it surpasses .7. Internal reliability scores for the RIAI are shown in Table.1, whilst the M-SSQ in Table.2. Acceptable subscale scores were reached for all subscales (ranging from .71 to .93) with exclusion of situational favourableness (.54). As a result of the unacceptable alpha the subscale was removed from further analyses. The above findings are care consistent with Wilson *et al's.* (2004) findings in relation to situational favourableness.

Table 1. Original and final coefficient alphas for the subscales of RIAI

<b>Factor</b>	<b>(<math>\alpha</math>) score</b>
<b>Intensity</b>	
Rehabilitation	.86
Re-entry to competition	.82
<b>Frequency</b>	
Rehabilitation	.87
Re-entry to competition	.83

Table 2. Cronbach alpha ( $\alpha$ ) coefficient results for the M-SSCQ

	<b>(<math>\alpha</math>) score</b>
Mastery	.71
Demonstration Of Ability	.87
Mental & Physical Preparation	.71
Physical Self Presentation	.81
Social Support	.82
Vicarious Experience	.71
Environmental Comfort	.71
Situational Favorableness*	.54
Leadership	.71

*Note.* \*Removed due to unacceptable alpha (<.54)

## 4.2 Confirming Underlying Assumptions

Prior to conducting the main analysis, all underlying assumptions of multicollinearity, independent errors, homoscedasticity and normality were assessed, to confirm wider generalizations are applicable when interpreting findings of the the study (Tabachnick & Fidell, 2001). A Durbin-Watson test was used to determine independence values, all

subscales successfully placed between 1 and 3, which clarified that independence can be assumed (Field, 2013). The tolerance and VIF values were examined to test for multicollinearity. All subscales had tolerance values of above 0.2 (Bowerman & Connel, 1990) and VIF values above 1 and below 10 (Field,2009).

The assumption of normality was initially assessed using histograms, which determined a lack of normal distribution (negative skew) of errors for the following variables; mastery, environmental comfort, vicarious experience, leadership and re-injury re-injury anxiety frequency. The results were further assessed by calculating the Skewness and Kurtosis values and converting then into z-scores to examine the disruption of the residuals (Field, 2013). Leadership, mastery, social support and self presentation demonstrated unacceptable z- scores, confirming the assumption of normality was violated (Field). A Kolmogorav-Smirvov test further confirmed non-normality with mastery ( $P > .05$ ), vicarious experience ( $P > .05$ ) and environmental comfort ( $P > .05$ ), and re-injury re-entry frequency ( $P > .05$ ), therefore demonstrating a normal distribution of errors. However, two data sets (participant 34 and 48) were removed due to be identified as an outlier in multiple box plots. Subsequently, normality was re-assessed; leadership still presented non-normality within the Skewness and Kurtosis and when using the Kolmogrov-Smirnov test all previous subscales aforementioned continued to present non-normality. Therefore, caution should be taken when reporting confidence intervals and significance tests, due to the small sample (N=48) (West, Finch, & Curran, 1995).

Lastly, Levene's test of homogeneity of variance was assessed on both measures with findings displaying non-significant scores ( $>.05$ ) for all sub-scales.

#### **4.3 Multiple Regression Analysis**

The predictive ability of the sources of confidence on re-injury anxiety frequency and intensity for both rehabilitation and re-entry into competition was measured and thus identified by a multiple regression analysis. This method was chosen due to its ability to identify the degree of variance within the outcome variable, accounted for by a predictor variable (Pallant, 2008). Table 3 provides both the means scores and standard deviations for all subscale scores.

Table 3. Means and standard deviation for all the M-SSCQ and RIAI subscales

<b>Model</b>	<b>Mean</b>	<b>Std.Deviation</b>
Rehabilitation Intensity	26.33	6.78
Rehabilitation Frequency	53.58	13.91
Re-entry Intensity	32.33	6.49
Re-entry Frequency	65.60	12.23
Mastery	5.43	.84
Demonstration of Ability	4.76	1.39
Mental/Physical Preparation	5.52	.77
Physical Self-Presentation	5.38	1.44
Social Support	5.84	.72
Vicarious Experience	5.13	.85
Environmental Comfort	5.06	.92
Leadership	5.76	.73

Results of the multiple regression showed demonstration of ability ( $P < .05$ ) was a significant predictor for three of the outcome variables, with the exception of re-entry re-injury frequency.

### **Rehabilitation Re-Injury Intensity**

The model summary, presented in Table 4 confirms that the predictor variables accounted for 47.4% ( $R^2 = .474$ ) of variance in rehabilitation re-injury anxiety intensity. Table 5 contains the ANOVA output, displaying the significant proportion of variance ( $P < .001$ ).

Table 4. Model Summary for rehabilitation re-injury anxiety intensity

<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
.689	.474	.367	5.39324

Table 5. One way ANOVA table for rehabilitation re-injury anxiety intensity

Model	Sum Of Squares	df	Mean Square	F	Sig.
Regression	1024.273	8	123.034	4.470	.001
Residual	1134.393	39	29.087		
Total	2158.667	47			

Table 6 shows both unstandardized and standardized coefficients. Results showed that Demonstration of Ability ( $P < .006$ ,  $\beta = .423$ ) made the biggest unique contribution to explaining the variance in the outcome variable (RIA-RI) with the greatest  $\beta$ -value (Beta column) clarifying the highest variance (Pallant, 2008; Field, 2013). Demonstration of ability, showed a significant positive relationship with the outcome variable.

Table 6. Coefficients table for rehabilitation re-injury anxiety intensity

Model	Unstandardized Coefficients		Standardized Coefficients	
	B	Std Error	Beta( $\beta$ )	Sig.
Mastery	.810	1.729	.100	.642
Demonstration Of Ability**	2.060	.704	.423	.006
Mental/Physical Preparation	-.984	1.942	-.111	.615
Physical Self-Presentation	1.684	.858	.359	.057
Social Support	-.873	1.725	-.092	.615
Vicarious Experience	.772	1.441	.096	.595
Environmental Comfort	-.472	1.185	-.064	.692
Leadership	-2.178	1.790	-.234	.231

Note \* significant at  $P < .05$ , \*\* significant at  $P < .01$ , \*\*\* significant at  $P < .001$



## Rehabilitation Re-Injury Anxiety Frequency

The model summary, presented in Table 7 confirms that the predictor variables accounted for 46.5% ( $R^2 = .465$ ) of the variance in rehabilitation re-injury anxiety frequency. Table 8 contains the ANOVA output, displaying the significant proportion of variance ( $P < .001$ ).

Table 7. Model Summary for rehabilitation re-injury frequency

<b>R</b>	<b>R Square</b>	<b>Adjusted R square</b>	<b>Std.Error of the Estimate</b>
.682 <sup>a</sup>	.465	.356	11.15772

Table 8. ANOVA table for rehabilitation re-injury frequency.

<b>Model</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	4226.369	8	528.296	4.244	.001
Residual	4855.298	39	124.495		
Total	9081.667	47			

Table 9 shows both unstandardized and standardized coefficients, demonstrating the unique contribution of 8 sources of sports confidence to the prediction of rehabilitation re-injury anxiety frequency. Results showed that physical self-presentation made the strongest unique contribution ( $P < .002$ ,  $\beta = .600$ ), followed by social support ( $P < .010$ ,  $\beta = -.500$ ). A positive relationship with the outcome variable was shown by physical self presentation, thus demonstrating that rehabilitation re-injury anxiety frequency increases as a result of increased dependence upon these specific sources. Conversely, social support demonstrated an inverse relationship, suggesting that as an athlete becomes more reliant upon these sources, rehabilitation re-injury anxiety intensity significantly reduced.

Table 9. Coefficients table for rehabilitation re-injury frequency

Model	Unstandardized Coefficients		Standardized Coefficients	
	B	Std Error	Beta (β)	Sig.
Mastery	1.321	3.576	.079	.714
Demonstration Of Ability	2.631	1.457	.263	.079
Mental/Physical Preparation	5.690	4.017	.313	.165
Physical Self-Presentation**	5.778	1.776	.600	.002
Social Support**	-9.688	3.568	-.500	.010
Vicarious Experience	-1.755	2.982	-.107	.559
Environmental Comfort	-2.896	2.452	-.191	.245
Leadership	-2.812	3.702	-.147	.452

Note \* significant at P<.05, \*\* significant at P<.01, \*\*\* significant at P<.001

### Re-Entry Re-Injury Anxiety Intensity

The model summary, presented in Table 10 confirms that the predictor variables accounted for 40.5% ( $R^2 = .405$ ) of the variance in rehabilitation re-entry re-injury intensity. Table 10 contains the ANOVA output, displaying the significant proportion of variance ( $P < .01$ ).

Table 10. Table summary for re-entry re-injury anxiety intensity

R	R Square	Adjusted R Square	Std.Error of the Estimate
.636 <sup>a</sup>	.405	.283	5.44958

Table 11. ANOVA table for re-entry re-injury anxiety intensity

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	803.096	8	100.387	3.319	.005
Residual	1179.571	39	30.245		
Total	1982.667	47			

Table 12 shows both unstandardized and standardized coefficients, demonstrating the unique contribution of the sources of sports confidence to the prediction of rehabilitation re-injury anxiety frequency. Results confirmed demonstration of ability ( $P < .031$   $\beta = .344$ ) made the strongest unique contribution. Mastery demonstrated a positive relationship with the outcome variable, suggesting that employing these sources as a means of gaining heightened confidence beliefs in fact resulted in elevated re-entry re-injury anxiety intensity. In contrast leadership had an inverse relationship with re-entry anxiety intensity which suggested that as dependence on these sources to derive confidence decreased re-entry re-injury anxiety decreased.

Table 12 .Coefficients table for re-entry re-injury intensity

Model	Unstandardized Coefficients		Standard Coefficients	
	B	Std Error	Beta( $\beta$ )	Sig.
Mastery *	1.350	1.763	.174	.014
Demonstration Of Ability*	1.604	.718	.344	.031
Mental/Physical Preparation	-.760	1.980	-.090	.703
Physical Self-Presentation	.078	.875	.017	.930
Social Support	2.330	1.759	.257	.193
Vicarious Experience	2.014	1.470	.263	.179
Environmental Comfort	-.077	1.209	-.011	.949
Leadership *	-4.044	1.825	-.453	.033

### Re-Entry re-injury frequency

The model summary, presented in Table 13 confirms that the predictor variables accounted for 31% ( $R^2 = .310$ ) of the variance in re-injury re-entry frequency. Table 14 contains the ANOVA output, displaying the significant proportion of variance.

Table 13. Model Summary for Re-entry re-injury anxiety frequency

R	R Square	Adjusted R square	Std.Error of the Estimate
.682 <sup>a</sup>	.310	.168	11.15897

Table 14. ANOVA table re-entry re-injury anxiety frequency

<b>Model</b>	<b>Sum Of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>Sig.</b>
Regression	2177.099	8	272.137	.050
Residual	4856.380	39	124.523	
Total	7033.479	47		

Table 15 demonstrates that all coefficients for re-entry re-injury frequency fail to predict a significant proportion of variance.

Table 15 .Coefficients table for re-entry re-injury frequency

<b>Model</b>	<b>Unstandardized Coefficients</b>		<b>Standard Coefficients</b>	
	<b>B</b>	<b>Std Error</b>	<b>Beta(<math>\beta</math>)</b>	<b>Sig.</b>
Mastery	1.577	3.576	.108	.662
Demonstration Of Ability	2.022	1.457	.230	.173
Mental/Physical Preparation	4.057	4.017	.254	.319
Physical Self-Presentation	2.369	1.776	.280	.190
Social Support	1.645	3.568	.096	.647
Vicarious Experience	.094	2.982	.006	.975
Environmental Comfort	-1.006	2.452	-.075	.684
Leadership	-6.403	3.703	-.381	.092

Note \* significant at  $P < .05$ , \*\* significant at  $P < .01$ , \*\*\* significant at  $P < .001$

# **CHAPTER 5**

# **DISCUSSION**

## **Discussion**

### **5.1 Introduction**

The rationale to the present study was to investigate the relationship between sources of sport-confidence and re-injury anxiety in injured athletes. Results showed two of the eight sources of confidence, namely; social support and leadership had significant inverse relationships with rehabilitation re-injury anxiety (intensity and frequency) and return to sport anxiety (intensity). Conversely, three of the eight sources of confidence, namely; mastery, demonstration of ability and physical self-presentation had significant positive relationships with rehabilitation re-injury anxiety and return to sport anxiety.

The chapter will discuss the relationship between sources of confidence and re-injury anxiety as well as the limitations, strengths, practical implications and recommendations for future research.

### **5.2 Re-Injury Anxiety and Sources of Confidence**

The results of this present study show specific sources of confidence contributed significantly to the variance in re-injury anxiety intensity and frequency in both rehabilitation and when returning to sport. Significant inverse relationships were found between re-injury anxiety frequency, and social support and leadership in both rehabilitation and return to sport. Indeed, such findings suggest that as reliance on social support or leadership to derive confidence increased the intensity and frequency of re-injury anxiety experienced by athletes subsequently decreased. Conversely, there were positive relationships between demonstration of ability, physical self presentation and mastery with re-injury anxiety; demonstration of ability and rehabilitation/re-entry intensity; mastery and rehabilitation intensity, physical self-presentation: rehabilitation frequency. Furthermore, no sources of confidence contributed significantly to the variance in re-injury anxiety frequency in athletes returning to sport, thus suggesting the sources of confidence had little or no effect on anxiety during this transition to competition.

In regards to re-injury anxiety during rehabilitation, demonstration of ability made the strongest unique contribution in both intensity and frequency outcomes suggesting that when reliance on this to derive confidence increased, levels of re-injury anxiety also

increased. These results are surprising as demonstration of ability has constantly been recognized as one of the most salient sources of confidence recognized by athletes (Kingston *et al.*, 2010; Vealey *et al.* 1998). One possible explanation could be that all of the participants were currently injured; therefore, enduring rehabilitation. For example, the majority of research concerning demonstration of ability as a source of confidence has been focused on athletes in a competitive environment. Hays *et al.*, (2007) reported athlete's confidence levels increased from competitive outcomes, whereas during the rehabilitation phase, athletes may find acquiring demonstration of ability as a source of confidence challenging to access, due to environment not being competitively orientated. Furthermore, an athlete's confidence may be enhanced through demonstrating they are more competent than others at certain skills, (Kingston *et al.*, 2010), displayed situation that rehabilitation doesn't easily lend itself to. Despite the contrasting findings in relation to previous research, Vealey *et al.*, (1998) offers support for the present findings in relation to the return to sport phase. This study suggested that demonstration of ability is an unstable source of confidence which can lead to fluctuations of confidence as a result of being centered upon uncontrollable factors. (Gould *et al.*, 1999). Therefore, in this study the fluctuating levels of confidence caused by an uncontrollable source may be responsible for the increased levels of anxiety. However, further research conducted in this area could provide support for the interpretation suggested.

Physical-self presentation was found to make the second strongest unique contribution to rehabilitation (intensity and frequency) and re-entry (frequency). Physical self-presentation had a positive significant relationship with the outcome variables, suggesting that when reliance on this source to derive confidence beliefs increased, levels of re-injury anxiety also increased. In part, these findings are consistent with with previous research, in which physical self-presentation has been identified as the most uninfluential source of confidence in a performance setting (Vealey *et al.*, 1998). Although, when considering re-injury anxiety, physical presentation seems to be a significant source of confidence, this may be clarified by the predominant female population (n= 46) comprised within the present study. Vealey *et al.*, (1998) suggested that female athletes rely on this source considerably more than men, with body image more significant to females. Furthermore, in relation to worries of body image surfacing, the present study's sample is comprised of athletes who are currently unable to train or compete, therefore a perceived loss of control could arise (Marchant *et al.*, 2005). With this perceived loss of control and deprivation physical activity due to injury, it is possible athletes are at risk for negative changes in

perceived body images. This notion is supported by Chan and Crossman (1998) who found that athletes who are unable to train and retain physical fitness may perceive body image as more of a stressor, that potentially may negatively influence performance and confidence. Nevertheless, findings of this study support previous research findings suggesting self-presentation as an uncontrollable source that has detrimental effects (Kingston *et al.*, 2010; Machida *et al.*, 2012). Wadey and Evans, 2011 suggested, that a decrease in confidence may facilitate an increase in re-injury anxiety, which is consistent to the present study's findings which found athletes who rely upon physical self-presentation may be more predisposed to re-injury anxiety. Interestingly, physical self-presentation contributed significantly more to the prediction of rehabilitation re-injury anxiety, than return to sport re-injury anxiety. This is surprising, as previous literature consistently recognized re-injury anxiety to be the most salient theme to athletes during the return to competitive sport. A possible explanation could be that athletes in the present study acquired more confidence during the rehabilitation stage by feeling physically paramount throughout the process. For example; feeling superior to all others by completing exercises quicker to potentially re-enforce one's recovery, thus enhancing confidence. In contrast to previous research findings, physical self-presentation is evidently a significant predictor of re-injury anxiety, and for this reason ought to be taken into consideration as a factor influencing confidence outcomes and subsequently re-injury anxiety levels.

Social support was found to make the second strongest unique contribution to the prediction of return to sport re-injury anxiety. Moreover, social support had a significant inverse relationship with re-entry re-injury intensity, suggesting that as reliance on this source to derive confidence beliefs increased, levels of re-injury anxiety decreased. These findings are consistent with previous research that supports social support as being one of the strongest predictors of sport-confidence (Hays *et al.*, 2007). Similarly, it is not surprising that social support was a stronger predictor of re-injury anxiety in the rehabilitation intensity phase as previous research has consistently suggested social support to be fundamental during rehabilitation (Podlog & Eklund, 2007; Eklund & Tenenbaum, 2011) and esteem support to be important in facilitating confidence restoration (Rees & Hardy, 2004). Likewise, Evans *et al.*, (2007) suggested emotional and informational support may facilitate lower levels of re-injury anxiety during rehabilitation. Furthermore, during the rehabilitation and return to sport phase, athletes may turn to a range of sources (e.g., physiotherapists, family, team mates and coaches) and multiple



types (e.g., informational and emotional) to acquire social support (Fernandes *et al.*, 2014). According to Johnston and Carroll (1998) the favored type of support tends to change during the injury process. Therefore, due to the environment prompted athletes may rely more heavily on significant others, in order to minimize return to sport transition apprehensions. These significant others may become a more effective stress-buffering source of confidence for injured athletes than the aforementioned types of social support. In a practical context, this explanation may be a contributing factor to the findings of the present study, showing that the correct type of social support was optimally matched to athlete's stressors during the the rehabilitation phase (Mitchell, 2011). Therefore, it is possible that participants of this present study received more beneficial support during the rehabilitation phase that led to an increased confidence to cope with the demands of rehabilitation.

During the re-entry into competitive sport, leadership was the most significantly predictor of confidence in relation to re-injury anxiety intensity. Furthermore, leadership had an inverse relationship with all outcome variables consistently been recognized as an influential source to impact a performers confidence and self-esteem during returning to competition (Hays *et al.*, 2010). Indeed, Prapavessis and Gordon, (1991) confirmed leadership to be a salient source in increasing an athlete's self esteem, thus providing continual progressive reinforcements, subsequently increasing one's confidence beliefs. Furthermore, Yukelson (1997) suggested that athletic leaders have profound relationships with athletes which greatly influences an athletes cognitive and emotional state, facilitating the athlete to cope better with demands of returning to sport. The findings present suggest athletes place great reliance upon coaches and physiotherapists to make critical decisions and belief in leadership decisions during the return to competitive sport phase, rather than the rehabilitation phase. Additionally, decision making in such organizational environments is an ongoing process that requires complex integrating of multiple sources of information to facilitate distal, socially mediated outcomes (Mintzberg, 1973; Stewart, 1967). Similarly, findings by Magyar and Duda (2000) suggest that the most salience source of confidence valued by athletes during the re-entry phase was perceived leadership qualities of the athletic trainer. Present findings suggest athletes value this source significant more during the re-entry phase, than the rehabilitation phase. One possible interpretation of this finding is that athletes were provided with greater support, which generated a stress-buffering effect, which possibly can reduce re-injury anxiety. The results may reflect the lack of guidance, support and decision making provided during the rehabilitation phase.

Therefore, in turn leading to a subsequent reliance on other sources to derive confidence beliefs (Magyar & Duda, 2000).

In relation to return to sport phase, results revealed mastery was not a significant predictor of re-injury anxiety. However, mastery was found to have a significant positive relationship with re-injury anxiety re-entry intensity. These findings are surprising as previous studies have consistently identified mastery experiences as a strong confidence predictor in a sporting context for athletes. (Vealey & Chase, 2008). Similarly, when categorizing the sources of sports confidence, Magyar and Duda (2000) suggested an achievement domain surrounding mastery. Vealey *et al.*, (1998) proposed that mastery was highly relied upon by task-oriented individuals to measure performance progress during rehabilitation. Thus a possible explanation as to why the findings were not consistent with previous research may be the present study comprising of few athletes who were in the early stages of rehabilitation.

In summary, the principal findings of the study suggest that by athletes deriving confidence from physical self-presentation, mastery and demonstration of ability could be detrimental to anxiety levels and therefore should be minimised. Conversely, reliance upon leadership and social support ought to be encouraged as it facilitates lower levels of re-injury anxiety levels. Additionally, no other sources of confidence were found to be significant predictors of re-injury anxiety within the present study.

### **5.3 Strengths and Limitations**

This present study had multiple strengths and limitations. In relation to its strengths, it explored an area with limited previous research attention within the sport psychology literature. This study accounted for re-injury anxiety in two dimensions (intensity and frequency) within both rehabilitation and return to sport contexts. A second strength of the study was that the sample was heterogeneous which allowed generalisation to a wider population. However, it should be considered that the sample size could also be a limitation due to it being relatively small. This is supported by Field (2013), who proposes that for every predictor variable in the model that is acquired in regression, a minimum of 10 cases of data should be utilised.

One potential limitation of the current study concerns the psychometric reliability of the Modified sources of confidence questionnaire (M-SSCQ). For instance, one of the nine sources of confidence (situational favorableness) failed to meet the acceptable .70 alpha criteria. Despite carrying out individual item analysis, this subscale continued to demonstrate an unacceptable score (.54), so it was removed from the study.

The final limitation is that an only a brief overview examines the relationship between re-injury anxiety and sources of confidence, thus failing to examine this relationship throughout the three phases of recovery, (onset, rehabilitation and return to sport). It is a recurrent theme when proposing that an athlete's response to injury is transient in nature and is liable to change over time within previous research (Bianco, 2001; Tracey, 2003; Wadey & Evans, 2011).

Additionally, Magyar and Duda's (2000) findings propose that throughout the three phases of recovery, it is common that the salience of each source of confidence can fluctuate throughout. Therefore, it should be acknowledged that the contribution of the sources of confidence to re-injury anxiety levels could potentially vary for each of the three recovery phases associated with injury.

#### **5.4 Practical Implications**

Several practical implications emerge from the study. The findings suggest that athletes who use social support to derive confidence beliefs are likely to experience low levels of rehabilitation re-injury anxiety. This information provides coaches, athletes and practitioners with a greater knowledge this source has on an athlete's confidence throughout the rehabilitation stage. Therefore, it is imperative ssupport networks to understand the significance of providing athletes with stable sources of confidence as it helps reduce re-injury anxiety and the associated debilitating affects during the long arduous rehabilitation process. Indeed, these factors can contribute to an unsuccessful rehabilitation process, thus if not suitably address they can predispose an athlete to re-injury (Magyar & Duda, 2000).

Physical self presentation, mastery and demonstration of ability were found to increase re-injury anxiety when utilised to derive confidence beliefs. In relation to the effects on re-injury anxiety, it is clear that coaches and practitioners should discourage a task-orientated training or rehabilitation environment (e.g., goal setting), that promotes reliance on

mastery. Additionally, applied practitioners should avoid utilizing demonstration of ability in intervention strategies due to unstable nature of the source. Vealey *et al.*, (1998) also identified this source to produce fluctuating emotions in social comparative situations, therefore causing deliberative confidence restoration effects. Likewise, the reliance on physical self-presentation as a source to derive confidence should be discouraged, to facilitate lower levels of re-injury anxiety. The results of this study are somewhat consistent with previous research; therefore, confidence restoration should be derived from the abovementioned sources, increasing the stability of confidence. However, due to some inconsistencies with present findings, it is imperative that practitioners are cautious when recommending these sources of confidence to injured athletes to reduce re-injury anxiety.

## **5.5 Future recommendations**

Despite significant findings regarding the relationship between sources of confidence and re-injury anxiety emerging from this present study, multiple avenues for future research have been acknowledged. Firstly, this present study highlighted a disparity in severity of injuries, ranging from minor (i.e., broken finger) to a severe injury (i.e., anterior cruciate ligament tear). Therefore, it should be noted that due to the different severities and complications associated within each injury, it is common that severity is a significant factor in determining the way in which an athlete's emotional response to injury may differ. Wiese-Bjornstal *et al.*, (1998) also agrees that post-injury factors can moderate an athletes' response to injury. Therefore, it appears that it may be beneficial for future research projects to assess whether the injury severity is an influential factor in relation to the relationship between sources of confidence and re-injury anxiety as well as categorizing injury severity during data collection.

Another recommendation for future research concerns the potential to carry out a longitudinal study. This will permit future research to examine what sources are most beneficial to derive confidence within each stage of the injury process.

A final recommendation for further research surrounds gender differences, surprisingly it common they determine when, and which sources of confidence are derived, and the influence of former injury on perceived risk. Despite previous sports-confidence literature proposing that gender differences could potentially be influential in determining what sources of confidence an athlete may acquire, the psychological research still remains in

its infancy (Vealey *et al.*, 1998; Kingston *et al.*, 2010). Therefore, the objective of future research should entail examining the relationship between sources of confidence and re-injury anxiety.

# **CHAPTER 6**

# **CONCLUSION**

## **6.1 Conclusion**

To conclude, the present study explored the relationship between sources of confidence and re-injury anxiety in injured athletes. The findings displayed multiple significant relationships between three of the RIA subscales and sources of confidence, namely; demonstration of ability, mastery and physical self presentation. Demonstration of ability was a significant predictor of outcome variables, with the exception of re-entry re-injury frequency which displayed no significant level of prediction from the eight sources of confidence on re-injury anxiety. In a practical context, findings of this present study suggest that practitioners, coaches and athletes need to understand which of the sources of confidence facilitates lowering re-injury anxiety at each of the phases of the injury process, in order to provide a suitable environment for athletes to make a successful transition to returning to competitive sport. The results identified social support and leadership as favourable sources to derive confidence beliefs from in order to reduce the levels of re-injury anxiety in both rehabilitation and return to sport environments. However, demonstration of ability, mastery and physical self-presentation were identified as unfavourable sources to derive confidence due to the heightened levels of re-injury anxiety when athletes place reliance upon them. This highlights the importance of providing injured athletes with the correct decision making, external support and coping strategies from significant others to increase the use of leadership and social support as a confidence source. Despite the present study addressing a research area that has formerly lacked attention within literature, further research is necessary from a qualitative perspective in order to elucidate this relationship in greater depth.

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# **APPENDICES**

**APPENDIX A**

**PARTICIPANT INFORMATION**

**SHEET**

## **Participation Information Sheet**

**Title of Project:** Investigating the relationship between re-injury anxiety and sources of confidence in injured athletes on return to competitive sport.

### **Background**

The aim of this project is investigate the relationship between re-injury anxiety and sources of confidence in injured athletes. The sample will comprise injured athletes.

### **The reason why you have been asked?**

You have been asked to participate because of your current injury status

### **What would happen if you agree to take part?**

You will be asked to complete a consent form, and three questionnaires about your injury experience. The questionnaires will take approximately 20 minutes to complete.

### **Are there any risks Involved?**

There are no risks associated with this study.

### **Your rights during the study?**

Participants have the right to withdraw from the study at any stage.

### **What happens to the results of the evaluation?**

All information provided by participants will be kept confidential and data will be protected.

### **Are there any benefits from taking part?**

There are no specific benefits from taking part in this research. However, the findings will help to improve our knowledge and understanding about athletes' psychological responses to injury.

### **Further information**

If you have any sort of questions or queries regarding the research or the way in which the study is being conducted, do not hesitate to contact myself directly.

Lowri Norkett

07964544973

[@outlook.cardiff.ac.uk](mailto:lowri.norkett@outlook.cardiff.ac.uk)

# **APPENDIX B**

# **INFORMED CONSENT FORM**

## Exemplar Consent Form

### CARDIFF METROPOLITAN UNIVERSITY INFORMED CONSENT FORM

CSS Reference No:

Title of project t: **Investigating the relationship between re-injury anxiety and sources of confidence in injured athletes on return to competitive sport.**

Name of researcher: Lowri Norkett

Participant to complete this section; please initial each box.

1. I confirm that I have read and understood the information sheet dated **05.05.15** for this evaluation study. I have had an opportunity to consider the information, and ask questions which have been satisfactorily answered.
2. I understand that my participation is voluntary and that it is possible to withdraw at any time, without giving a reason.
3. I understand that if I withdraw, our relationship with Cardiff Metropolitan University and our legal rights will not be affected.
4. I understand that the information from the study may be used for reporting purposes, but that I will be kept anonymous and not be identified.
5. I agree to take part in this study to investigate the relationship between re-injury anxiety and sources of confidence in injured athletes on return to competitive sport.

Name of participant:

Signature of participant

Date

\_\_\_\_\_  
Name of person taking consent

\_\_\_\_\_  
Lowri Norkett

\_\_\_\_\_  
Signature of person taking consent

Lowri Norkett

Date – 05.05.15

**APPENDIX C**  
**DEMOGRAPHIC**  
**INFORMATION SHEET**

**Demographic Information**

Age\_\_\_\_\_

Gender\_\_\_\_\_

What is your main Sport \_\_\_\_\_

Years competing?\_\_\_\_\_

What is the highest level that you have competed at (e.g., International age-group, National, Regional, Club)?

\_\_\_\_\_

When did you compete at this level (highest level)?\_\_\_\_\_

What is/was the nature of the injury that you sustained?\_\_\_\_\_

\_\_\_\_\_

When did you sustain the injury?\_\_\_\_\_

Has the injury required surgery? Yes / No\_\_\_\_\_

If yes what was the date of your surgery?\_\_\_\_\_

Have you already returned to competitive sport post-injury? Yes / No\_\_\_\_\_

When did you return to competitive sport post-injury? \_\_\_\_\_

How long do you anticipate/did the injury prevent you from competing in your main sport?

\_\_\_\_\_

\_\_\_\_\_

Could you tell us about any previous injuries - i.e., previous injuries that you sustained, when, and how long they kept you out of sport?

\_\_\_\_\_

Do you have private medical health cover? Yes/No \_\_\_\_\_



**APPENDIX D**

**MODIFIED SOURCES OF**

**SPORT CONFIDENCE**

**QUESTIONNAIRE**

**The Modified Sources of Sport-Confidence Questionnaire**

**Athlete Self-Rating Scale (SSCQ)**

We are interested in learning about things that help **YOU** be self-confident when participating in your **rehabilitation program**. Listed below are some things that may help/have helped athletes feel confident during rehabilitation. **Please circle the extent to which each statement reflects your current/past rehabilitation experience.** Please respond to every statement even though they may appear repetitive. There are no right or wrong answers because each athlete is different. Please be honest- your answers will be completely confidential.

**I usually gain/gained (as appropriate) confidence in my rehabilitation programme from...**

		Not at all			Sometimes			Always	
1	Getting positive feedback from my teammates and/or friends	0	1	2	3	4	5	6	7
2	Completing rehabilitation exercises faster than others	0	1	2	3	4	5	6	7
3	Keeping my focus on the task	0	1	2	3	4	5	6	7
4	Psyching myself up	0	1	2	3	4	5	6	7
5	Mastering a new skill in rehabilitation	0	1	2	3	4	5	6	7
6	Getting breaks from my physiotherapist	0	1	2	3	4	5	6	7
7	Performing in a rehabilitation environment that I like and in which I feel comfortable	0	1	2	3	4	5	6	7
8	Feeling good about my weight.	0	1	2	3	4	5	6	7
9	Believing in my physiotherapist's abilities	0	1	2	3	4	5	6	7
10	Knowing I have support from others that are important to me	0	1	2	3	4	5	6	7
11	Demonstrating that I am better than others	0	1	2	3	4	5	6	7
12	Seeing successful rehabilitation performances by other athletes	0	1	2	3	4	5	6	7
13	Knowing that I am mentally prepared for the situation.	0	1	2	3	4	5	6	7
14	Following certain rituals (e.g. wearing a lucky shirt, eating certain foods etc.)	0	1	2	3	4	5	6	7
15	Improving my performance on a skill in rehabilitation	0	1	2	3	4	5	6	7
16	Seeing the breaks are going my way	0	1	2	3	4	5	6	7
17	Feeling that I look good	0	1	2	3	4	5	6	7
18	Knowing my physiotherapist will make good decisions	0	1	2	3	4	5	6	7
19	Being told that others believe in me and my abilities	0	1	2	3	4	5	6	7
20	Showing my ability by doing my best in rehabilitation	0	1	2	3	4	5	6	7
21	Watching another athlete I admire perform a rehabilitation skill	0	1	2	3	4	5	6	7
22	Staying focused on my goals	0	1	2	3	4	5	6	7
23	Improving my rehabilitation skills	0	1	2	3	4	5	6	7
24	Feeling comfortable in the rehabilitation environment in which I am performing	0	1	2	3	4	5	6	7
25	Feeling that everything is "going right" for me in that situation	0	1	2	3	4	5	6	7
26	Feeling as though my body looks good	0	1	2	3	4	5	6	7
27	Knowing my coach is a good leader	0	1	2	3	4	5	6	7

**I usually gain/gained (as appropriate) confidence in my rehabilitation programme from...**

		Not at all			Sometimes			Always	
28	Being encouraged by physiotherapist and/or family	0	1	2	3	4	5	6	7
29	Knowing I can outperform others on rehabilitation exercises	0	1	2	3	4	5	6	7
30	Watching a teammate successfully perform rehabilitation exercises	0	1	2	3	4	5	6	7
31	Preparing myself physically and mentally for a situation	0	1	2	3	4	5	6	7
32	Increasing the number of rehabilitation skills I can perform	0	1	2	3	4	5	6	7
33	Liking the environment where I am performing	0	1	2	3	4	5	6	7
34	Having trust in my physiotherapist's decisions	0	1	2	3	4	5	6	7
35	Getting positive feedback from physiotherapist and/or family	0	1	2	3	4	5	6	7
36	Proving I am better than others in rehabilitation	0	1	2	3	4	5	6	7
37	Seeing a friend perform rehabilitation successfully	0	1	2	3	4	5	6	7
38	Believing in my ability to give maximum effort to complete my rehabilitation program	0	1	2	3	4	5	6	7
39	Receiving support and encouragement from others	0	1	2	3	4	5	6	7
40	Showing I am one of the best in rehabilitation	0	1	2	3	4	5	6	7
41	Watching my teammates who are at my level perform well	0	1	2	3	4	5	6	7
42	Developing new skills and improving	0	1	2	3	4	5	6	7
43	Feeling my physiotherapist provides effective leadership	0	1	2	3	4	5	6	7

**APPENDIX E**

**RE-INJURY ANXIETY  
INVENTORY**

**RE-INJURY ANXIETY**

**Below are a number of statements about re-injury worries that athletes may experience during rehabilitation and return to competition. Read each statement and circle the appropriate number to indicate how you feel right now. For each statement first rate how much (i.e., level) of the symptom you experienced, and then rate the frequency (i.e., how often) of these symptoms.**

		LEVEL (HOW MUCH)				FREQUENCY (HOW OFTEN)						
		Not at all	Some-what	Moderately so	Very much so	Never						All the time
		0	1	2	3	1	2	3	4	5	6	7
1	I am/was worried about becoming re-injured during rehabilitation	0	1	2	3	1	2	3	4	5	6	7
2	I feel/felt nervous about becoming re-injured during rehabilitation	0	1	2	3	1	2	3	4	5	6	7
3	I have/had doubts that I will remain injury free during rehabilitation	0	1	2	3	1	2	3	4	5	6	7
4	I feel/felt on edge about becoming re-injured during rehabilitation	0	1	2	3	1	2	3	4	5	6	7
5	I am/was worried that I may not do as well as I could in rehabilitation due to re-injury worries	0	1	2	3	1	2	3	4	5	6	7
6	My body feels/felt tense about rehabilitation because of re-injury worries	0	1	2	3	1	2	3	4	5	6	7
7	I am/was worried about failing during rehabilitation due to my re-injury worries	0	1	2	3	1	2	3	4	5	6	7
8	Re-injury worries about rehabilitation make my body feel tense	0	1	2	3	1	2	3	4	5	6	7
9	I am/was worried about performing poorly during rehabilitation due to re-injury worries	0	1	2	3	1	2	3	4	5	6	7
10	I feel/felt my stomach sinking due to re-injury worries during rehabilitation	0	1	2	3	1	2	3	4	5	6	7
11	I am/was confident about not becoming re-injured during rehabilitation because I mentally picture myself staying injury free	0	1	2	3	1	2	3	4	5	6	7
12	I am/was worried about concentrating during rehabilitation because of re-injury worries	0	1	2	3	1	2	3	4	5	6	7
13	My body feels/felt tight due to re-injury worries during rehabilitation	0	1	2	3	1	2	3	4	5	6	7

		LEVEL (HOW MUCH)				FREQUENCY (HOW OFTEN)						
		Not at all	Some-what	Moderately so	Very much so	Never			All the time			
		0	1	2	3	1	2	3	4	5	6	7
14	I am/was worried about becoming re-injured during re-entry into competition	0	1	2	3	1	2	3	4	5	6	7
15	I feel/felt nervous about becoming re-injured during re-entry into competition	0	1	2	3	1	2	3	4	5	6	7
16	I have/had doubts that I will remain injury free during re-entry into competition	0	1	2	3	1	2	3	4	5	6	7
17	I feel/felt on edge about becoming re-injured during re-entry into competition	0	1	2	3	1	2	3	4	5	6	7
18	I am/was worried that I may not do as well as I could on returning returning to competition due to re-injury worries	0	1	2	3	1	2	3	4	5	6	7
19	My body feels/felt tense about re-entering competition because of my re-injury worries	0	1	2	3	1	2	3	4	5	6	7
20	I feel/felt confident that I will not become re-injured during re-entry into competition	0	1	2	3	1	2	3	4	5	6	7
21	I am/was worried about failing when re-entering into competition due to re-injury worries	0	1	2	3	1	2	3	4	5	6	7
22	Re-injury worries about re-entry into competition make/made my body feel tense	0	1	2	3	1	2	3	4	5	6	7
23	I am/was worried about performing poorly during re-entry into competition due to re-injury worries	0	1	2	3	1	2	3	4	5	6	7
24	I am/was worried about failing to achieve full re-entry into competition due to re-injury worries	0	1	2	3	1	2	3	4	5	6	7
25	I am/was worried that others will be disappointed if I become re-injured during re-entry into competition	0	1	2	3	1	2	3	4	5	6	7
26	The thought of re-injury during re-entry into competition makes/made my palms sweaty	0	1	2	3	1	2	3	4	5	6	7
27	I am/was worried about concentrating during re-entry into competition because of re-injury worries	0	1	2	3	1	2	3	4	5	6	7
28	My body feels/felt tight due to re-injury worries during re-entry into competition	0	1	2	3	1	2	3	4	5	6	7