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**CARDIFF METROPOLITAN UNIVERSITY**  
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**CARDIFF SCHOOL OF SPORT**

**DEGREE OF BACHELOR OF SCIENCE (HONOURS)**

**SPORT CONDITIONING, REHABILITATION AND  
MASSAGE**

**AN INVESTIGATION IN TO THE SOURCES OF  
CONFIDENCE ACROSS THE PHASES OF INJURY  
RECOVERY.**

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

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AN INVESTIGATION IN TO THE  
SOURCES OF CONFIDENCE  
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# ABSTRACT

The aim of the present study was to investigate into the differences within use of the sources of confidence across the three phases of rehabilitation. Injured athletes (N=51) consisted of (N=17) participants within onset, (N=17) in rehabilitation and (N=17) for return to sport. All participants completed the Modified Sources of Sport-Confidence Questionnaire (M-SSCQ; Magyar and Duda, 2000). A multifactorial MANOVA was conducted to examine the differences in the sources of sport-confidence within their use across the given phases of recovery from injury. The results of the MANOVA provided a multivariate test result of .719, given the alpha was above significance of ( $p < .05$ ) no follow up tests were conducted and non-significance was reported within the differences of the sources across the phases of rehabilitation. However, means and standard deviations presented some differences, with onset regularly noted to be of highest use of the sources across the phases, dropping of and followed by rehabilitation then return to sport. Furthermore, social support and coach/physiotherapist leadership where the two highest presented means within sources noted across all three phases. The findings suggest that onset period of injury may have greater need for variety of sources when regarding confidence restoration. Further research of a qualitative longitudinal nature could help to explain these findings in the sources of confidence across the phases of injury more in depth.

# CHAPTER 1

## INTRODUCTION

## 1.1 Introduction

Self-confidence and the determinants from which it is derived has consistently been recognised to have an important influence on athletic performance (Vealey, 2001; Hays et al., 2007). However detailed research into the relationship between confidence and injury within the sport environment has much less depth in comparison to the performance demeanour. None the less, research has found that a major cognitive response following injury is the decrease in an athlete's self-confidence (Wiese-Bjornstal, et al., 1998; Taylor and Taylor, 1997). A study conducted by Magyar and Duda (2000) applied the sources of confidence proposed by Vealey (2001;2008) into an injury setting of which they considered confidence restoration through the athletes use of the sources at different time periods during recovery from injury. Their findings iterated a need to distinguish what sources of athletes' confidence judgements are truly adaptive and maladaptive throughout the recovery from injury process. Moreover, injury as a process has been organised into three noted phases being onset, rehabilitation and return to competitive sport, of which Evans et al., (2011) explains that practitioners must recognise that athletes are able to oscillate between the phases of injury, and their responses and behaviours are able to change over the course of injury.

The current study therefore aims to progress understanding within this topic through conducting further research into the sources of confidence, whilst looking into how/when they are derived within the course of injury. Therefore use of the Modified Sources of Sport Questionnaire (M-SSCQ) proposed by Magyar and Duda (2000) across the phases of injury proposed within research such as (Evans et al., 2011; Taylor and Taylor, 2007) alongside the demographic information sheet were prescribed to participants. Fifty one athletes participated within the current study, results were then analysed to reveal any changes within the sources of confidence proposed across the phases (time periods) of recovery from injury.

# CHAPTER 2

# LITERATURE REVIEW

## **2.1 Injury In sport**

Physical exertion and involvement in a sport activity has within it an inherent danger of physical injury (Tracey 2003). A study estimated over a two year period that seven million Americans required medical attention due to sports injuries, of which the incidence rate was translated to 25.9 injuries per population of 1000 (Aaltonen S, et al., 2007). Similar findings from other countries have been noted, suggesting that athletes run high chances of becoming injured at some point throughout their career. Moreover, when such injuries occur the sole focus of attention is commonly placed upon the physical aspects of injury, yet researchers have documented that injury entails with it a range of psychosocial factors (Tracey, 2003; Brewer, 2007; Bauman, 2005). Beside this it is recognised that not all athletes are able to make a full recovery from injury (Podlog and Eklund, 2006). Therefore researchers have recommended that practitioners, coaches and sport scientists become conscious of all aspects and challenges that athletes face so as to provide effective interventions and support, thus helping athletes make a successful return to competitive performance (Evans et al., 2011; Podlog, 2009; Tracey, 2003).

## **2.2 Psychological Responses to Injury**

Current literature recognises that sport injury recovery follows a process whereby different phases are accounted. Such phases consist of injury onset, rehabilitation and return to competitive sport. These phases can be separated into two transitions: consideration of treatment from injury and illness, as well as the decision to return to full activity (Bianco, 1999; Taylor and Taylor, 1997; Evans et al., 2011). What's more, all phases are interchangeable and therefore it is possible for an athlete to go back a stage as opposed to forward during rehabilitation.

Consistently, literature states that athletes respond cognitively, behaviourally and emotionally towards injury; such behavioural responses consist of adherence to the rehabilitation programme, risk taking behaviours, loss of confidence and motivation, and use or disuse of social support networks (Weise-Bjornstal et al., 1998; Kingston et al., 2010; Podlog, 2011). In that cognitively, fears and worries can become prevalent around re-injury anxiety, inability to perform to previous standards, lack of athletic identity, insufficient social support and feelings of isolation (Kvist et al., 2005; Podlog, 2006). Whilst emotionally an athlete can also be presented with fear, grief, frustration, anger, boredom, depression and tension. (Tracey, 2003; Bianco, 1999; Wiese-Bjornstal, et al., 1998). Researches have further noted that athletes' responses to injury fluctuate and change, influencing one another additively and interactively over the course of their recovery (Evans et al., 2011). Such a breadth of negative responses in itself suggests how complicated injury is for athletes and that it is imperative they get help through information and support from professionals, in helping them overcome and face such challenges presented. Taking into account that ignoring the psychological experience that an athlete goes through during the course of their injury, can have a seriously detrimental effect towards recovery in terms of getting them back to peak performance (Tracey, 2003).

### **2.3 Relevant Models**

To date, a number of models have been proposed to explain the underpinning processes of an athlete's psychological responses to injury. Of these, the one which has most relevance to the current study is Wiese-Bjornstal et al., (1998) integrated model of response. This model suggests that both pre injury and post injury factors affect the athlete's emotional, cognitive and behavioural response. Pre-injury factors consist of coping strategies and resources, history of stressors, previous injury, and major life events as well as an individual's personality, whilst Post-Injury factors are established through both personal and situational factors. Personal factors consist of injury (Severity, type, history), individual differences (Personality, pain tolerance, athletic identity) to name a few, demographic (gender, age, ethnicity) and physiology. Whilst, situational factors encompass sport (type, level, time in season) social factors

(teammates influence, coach influence and social support network) and environmental factors (rehabilitation environment, accessibility).

Furthermore it is explained that athletes appraise many things post-injury; for example perceptions of availability of social support, about the cause of the injury and recover status plus more (Wiese-Bjornstal et al., 1998). Therefore, how the individual appraises injury leads to a cyclic nature of their recovery outcomes, comprising of both emotional and behavioural responses. Behaviourally; adherence to rehabilitation, risk taking behaviours, effort and intensity to name a few have been documented, whilst emotionally fear of the unknown, frustration, grief and depression plus more have been noted (Tracey, 2003; Udry, 1997; Podlog, 2011; Evans et al., 2011). It is important to note that although the predominant path explained iterates how cognitive appraisals affect emotions, which then affect behaviours, however influences in the reverse direction are also possible. As such Weise-Bjornstal et al., (1998) explains that we should envision the dynamic core as a three dimensional spiral, in which it heads upwards towards full recovery if the outcomes are positive, whilst it may head downwards if the opposite is true.

## **2.4 Sport-Confidence**

Coaches and practitioners have regarded confidence as an essential skill for athletes (Vealey and Chase, 2008). What's more, confidence has frequently been recognised to have a positive relationship with performance within literature and is regarded to significantly influence the athlete's behaviours, feelings and thoughts (Jones and Hanton, 2002; Vealey, 2001; Hays et al., 2009). Due to this, interventions and goals forgone by athletes from sport psychologists have regularly been aimed towards increasing confidence (Machida et al., 2012). Of recent, there have been two main conceptual approaches with regards to the topic of confidence in sport, these are comprised of The Sport-Confidence Model (Vealey 1986; 2001; 2008) and Self-Efficacy Theory (Bandura, 1977; 1997). The definition of sport confidence is the belief or degree of certainty that an athlete holds to their ability to be successful

within sport (Vealey, 1986). Whilst self-efficacy is regarded as a micro level approach, which considers ones belief at a given action or task required to produce given attainments (Bandura, 1997). Thus, self-efficacy theory is noted as a situation-specific form of self -confidence in which it is comprised of behaviours, cognitions and physiological factors and environmental influences that all interact to produce ones' efficacy towards a task/situation (Bandura, 1977, 1997).

From a sport specific stand point, Vealey (1986) proposed that a interactional model that measured an athlete's confidence through their given trait SC-Trait (belief or degree of certainty one possesses about their ability to be successful within sport) and state SC-State (degree of certainty an individual possesses at one given time) alongside competitive orientation (athletes' tendency to strive towards achieving a certain goal) was an effective procedure for a sport-specific confidence measurement. In this case perceptions of an individual's thoughts were deemed important. It was implied that positive subjective outcomes such as perceptions of competence, success and pride where noted to enhance SC-Trait, whilst negative perceptions such as failure, shame and dissatisfaction where noted to undermine SC-trait (Vealey, 1986). Furthermore, it was inferred that through successful sport experiences, athletes could then become more performance or outcome-orientated within their competitive orientation (Vealey, 1986).

Overall, it was proposed that SC-trait and competitive orientation interacted together within the situation to determine SC-state, of which SC-state was noted to be the most important predictor of an athlete's behaviour (Vealey, 1986). However Vealey's earlier model provided limited support between the relationship of competitive orientation and SC-State against further research (Martin and Gill, 1992) and later research conducted by Vealey and Knight (1992) noted how SC-trait was a better predictor within terms of sport behaviour and performance than SC-State. What's more it was also recognised that Vealey's (1986) model did not take into account the impact of social and organisational factors and its role in the manifestation of confidence.

The model was later revised, with the inclusion of confidence being manifested from varying sources such as competitive standards, motivational climate, organizational culture, personality characteristics, attitudes, goals, gender and individual values of the athlete (Vealey, 2001).

The re-conceptualized model accounted for social and organisational factors and their impact upon athletes' manifestation of confidence, creating a broader perspective. Besides this the revised model indicated that the sources that either increased or decreased one's confidence was regarded more important than assessment of overall levels of SC trait and SC state (Vealey; 2001). To further provide support for Vealey's (2001) reconceptualised model, Hays et al. (2007) conducted a study in which support was positive, suggesting that confidence was a multidimensional construct comprised of different types of sport-confidence (skill execution, achievement, physical and psychological factors, superiority to opposition, athletic specific factors and tactical awareness). Furthermore, sport-confidence types were concluded to be evidence-based belief systems that were grounded within performers' sources of confidence. It was due to further findings that Vealey and Chase (2008) integrated such types of confidence and findings into their current model, of which they also suggested that personality characteristics and demographics alongside the organizational culture of sport had influence over the athletes types of sport confidence possessed and the sources upon which athletes' based their beliefs (Thomas et al., 2011).

## **2.5 Sources of Sport-Confidence**

Advancement within the field of sport-confidence and self-efficacy has proven that the determinants are of considerable interest in further understanding the complexity of the multi-dimensional construct of sport-confidence/ self-efficacy (Bandura, 1990; Maddux and Gosselin, 2003; Vealey; 2001). In support, Feltz et al. (2008) explained how self-efficacy beliefs, whether accurate or faulty are acknowledged to be a product of self-appraisal and self-persuasion which rely on cognitive processing of

diverse sources of efficacy information. It was from Bandura's (1977; 1997) model of self-efficacy that four principle sources of information were proposed; vicarious experiences (comparisons, modelling of others), past performance accomplishments (mastery, enactive experiences of mastery), physiological and emotional states and verbal persuasion (social influences). However since then further research has proposed a further source being imaginal experiences alongside separating emotional states from physiological states and in doing so have documented six sources of self-efficacy (Maddux, 1995; Schunk, 1995).

It was proposed by Bandura (1997) that past performance accomplishments was to be considered the most influential source of self-efficacy seeing as it was based on their own experiences. Since this proposal, there has been a considerable amount of research that has supported this notion, one which approves is Moritz et al.(2000) where by it was documented that a larger and significant difference within correlations for studies that assessed self-efficacy before performance ( $r=0.36$ ) compared to those studies that assessed self-efficacy after performance ( $r=0.39$ ) was noted. Short and Stewart (2009) explained how this shows how a person gains experience of a task over time, hence performance becomes a stronger predictor with regards to self-efficacy than self-efficacy is of performance.

With regards to vicarious experience's acknowledgment from aspiring athlete's that models whom displayed positive body language such as competitive, confident, positive and relaxed in comparison to those that displayed negative body language provided aspiring athletes with more confidence in their capability to beat opponents, especially against those opponents who displayed negative body language, and those who wore general not specific sports clothing (Greenlees et al., 2005a; 2005b). Imaginary experiences and its use of imagery has been supported to enhance self-efficacy/ confidence within many studies to date (Hays, 2007; Evans et al., 2006; Hanton and Jones; 1999) to name a few.

When regarding verbal persuasion, research has been less, whilst by itself Bandura (1997) reported that verbal persuasion is a less effective source of self-efficacy compared to the others in that it is can provide debilitating effects due to persuasory information, which is considered more influential than the enabling and facilitative effects. Moreover, physiological states, the most important states noted for athletes are strength, fitness, arousal, fatigue and pain. However, how much these states impact ones' self-efficacy beliefs is dependent on situational factors and the perception athletes give to them (Ross and Short, 2009). It has been documented that the athlete's perception on the physiological state is declared to be more important than the actual physiological state in itself. (Feltz et al., 2008). Moreover, Feltz et al. (2008) explained how subjective emotional states are not simply a bi-product of physiological states such as arousal and it has been found that individuals are more likely to have greater efficacious beliefs in themselves if the emotional state is positive (Bandura, 1977). Whilst overall factors are considered to influence one's perception of emotional states; being perception of control and one's past experiences (Feltz et al., 2008).

Besides Bandura (1977; 1997) model others such as Vealey (1986; 1998; 2001; 2008) have considered the multi-dimensional aspect of confidence, applying it more towards sport performance. Most recently Vealey and Chase (2008) established the sources of sport-confidence to include demonstration of ability, mastery, physical and mental preparation, physical self-presentation, environmental control, vicarious experience, coach's leadership and situational favourableness. It is important to note Vealey and Chase's (2008) model also includes some of the findings replicated in others' literature upon the subject (Hays et al., 2007; Vealey and Knight, 2002; Vealey, 2001; Bandura, 1997). Such findings included Hays's (2007) inductive approach, where two additional sources were noted as innate ability (belief in an ability or skill) and perceived competitive advantage. Whilst three specific types of sport confidence where considered important, these consisted of SC physical skills and training, SC cognitive efficiency and resilience (Vealey and Knight, 2002).

When regarding the nine sources of confidence proposed by Vealey and Chase (2008), demonstration of ability is recognised to strengthen an athlete's feelings of confidence and lead to successful performances, it is considered of most importance around the time of nearing competition as it is common for athletes to experience fleeting confidence (Hays et al., 2007; Kingston, 2010). Furthermore, it has been cited that positive competitive performances alongside outperforming partners greatly lead to an increase within confidence (Hays et al., 2007). However, the source depends upon uncontrollable factors which can lead to unstable and fluctuating confidence (Vealey et al., 1998).

Furthermore, within mastery, past performances were deemed most influential and stable, as the information is based on personal experiences (Bandura, 1977; Vealey, 1998). In conjunction, Kingston (2010) explained how enactive mastery experiences when utilised to overcome barriers and persist against challenges, lead to stable and robust confidence beliefs. Furthermore, Moritz et al. (2000) concluded that athletes who assess self-efficacy after performance compared to those before, had a significantly greater score. From a mental/physical preparation standpoint, athletes have iterated that physical training through good physical condition, skill repetition and pertaining effort increased their confidence. In the same study, athletes implied that goal setting alongside rectifying weaknesses when used regularly were effective in improving their confidence (Hay's et al., 2007). Moreover, athletes have deemed mental/physical preparation to be more important closer to performance and competition and the source is considered reliable and stable due to the factors of the source being controllable. Therefore, it is proposed that utilizing the source as competition approaches helps retain an athlete's confidence (Kingston, 2010; Vealey, 1998).

The source physical self-presentation has been noted to be more important for females, perhaps due to the need for social approval from others being more consistent within the female gender (Vealey, 1998). Additionally Kingston (2010)

iterates that elite athletes utilise self-presentation more nearing major competition and that through physical training physical conditioning is set to improve, thus nearing competition, athletes are at their most conditioned self's making their confidence increase. However, Magyar and Duda (2000) found a significant link between self-presentation and high ego-orientation, it was implied that self-presentation was an uncontrollable and unreliable source to utilise for enhancing sport confidence (Machida, et al., 2012; Vealey and Chase, 2008). Social support conceptualised within Vealey's (1998) reconstructed model has been acknowledged to share similarities to Bandura's (1977; 1986; 1997) verbal persuasion source. The difference being that social support was considered more specific towards getting positive feedback both in the forms of information and emotion from given sources such as coaches, teammates and/or friends (Vealey, 1998; Vealey and Chase, 2008). In addition, social support has been recognised as being stable and important in its lead up to competition, yet not as important as other achievement based sources of sport confidence (Kingston, 2010; Hays et al., 2007). However, with regards to information support the feedback provided to an athlete can undermine self-efficacy beliefs or boost them, dependant on the athlete's perception (Bandura, 1997), therefore incorporation of feedback that provides enhancement of sport-confidence is essential.

Vicarious experiences as a source involves observing and comparing oneself within relation to others or norms (Ross and Stewart, 2009). However the source can be unstable in that when an athlete compares themselves with the most confident individual (amateur compares with professional) then the confidence gain is usually lower than otherwise. Modelling within vicarious experience's consist of four effective conditions; attention, retention, production and motivation and results have implied that models who displayed positive body language; competitive, experienced, focused and positive compared to negative body language are much more confidence enhancing for those athletes observing (Feltz et al., 2008). With regards to coach's leadership, athletes have cited that social support from their coach was deemed significant alongside encouragement, positive feedback/reinforcement and belief in the coach within providing confidence to the athlete (Hays et al., 2007). However Bandura (1997) iterates how such feedback by someone important like the

coach can either undermine or boost the self-efficacy of the athlete, dependant on the athlete's perception. Overall success and failure are set to increase or decrease one's self-confidence respectively and Ross and Stewart (2009) found that those who received positive feedback had higher levels of self-efficacy in comparison to those who received negative feedback.

Situational Favourableness accounts for the athlete's perception on something that has occurred within the sporting situation which will increase their chance of success (Hays et al., 2007; Vealey, 2008). Of which competitive advantage, seeing competition perform badly or crack under pressure enhances the athlete's confidence (Hays et al.; 2007). What's more, situational favourability has been recognised as an uncontrollable source, through its reliance on external changes within the sporting competition climate. A study conducted by Magyar and Feltz (2003) found a significant link between uncontrollable sources and ego-orientation, this suggesting that ego-goal orientation in athletes may relate to the importance of uncontrollable sources such as situational favourableness (Machida et al., 2012). Finally environmental comfort has been represented as a source of confidence through the athlete's feelings of comfort within the competitive environment (Vealey; 1998). Environmental comfort was one of the lowest scored sources of confidence within its importance, this could be seen as being due to its external uncontrollability (Vealey, 1998). Likewise, Vealey's reconceptualised model found that females found environmental comfort to be more important when in comparison to males. This is in conjunction with Hays et al., (2009) who concluded from their findings that females were noted to yield their confidence more from uncontrollable sources such as situational favourableness and environmental comfort in comparison to males.

## **2.6 Sport-Confidence Injury Approach**

With regards to the rehabilitation environment, it has been distinguished that a major response to injury is an athlete's decrease in confidence and/or self-efficacy (Bandura, 1993; Magyar and Duda, 2000; Tracey, 2003). Therefore, injured athletes

should first undergo the process of restoring self-confidence within their beliefs about performing successfully, prior to returning to competitive performance (Magyar and Duda, 2000). What is more, injured individuals associated with low levels of confidence commonly report dissatisfaction (regarding programme, rehabilitation progression and personal outlook), apathy (lack of motivation with programme and recovery), anxiety (re-injury and performance expectations) and depression (through loss of mobility) (Hays et al., 2009; Tracey, 2003; Magyar Duda, 2000; Evans et al., 2010).

Confidence alongside other responses to injury has been understood to be influenced by a combination of situational factors including psychological investment in sport, coping skills, injury severity and progress within recovery (Weise-Bjornstal et al., 1998; Brewer, 1995; Bianco, 1999). Besides this Milne et al. (2005) explained that three types of self-efficacy, task, barrier and scheduling both being subtypes of coping efficacy all hold relevance within the athletic rehabilitation environment. Of these, task self-efficacy has been shown to influence behavioural intention and initiation, whilst coping efficacy influenced the maintenance of exercise behaviour (Rodgers et al., 2002). Furthermore, Milne et al., (2005) found that athletes lacked ability to stay efficacious when faced with challenges such as setbacks, it was implied that practitioners should use techniques geared towards augmenting coping self-efficacy. Therefore, athletes commonly use coping strategies to accommodate changing their perceptions of injury; these include goal setting, adopting a positive outlook, healing imagery, self-talk and use of social support. (Gould et al., 1997a; Bianco, 1999). Besides this, it was implied that a cross-sectional study in which athletes were grouped into the stages of rehabilitation would help inform fluctuations within self-efficacy.

Through basis of the Social Cognitive Theory, Bandura (1997) and Vealey's (2008) revised model, it is implied that such sources of self-efficacy and sport confidence when regarded in the rehabilitation setting, impact upon the athlete's transition through rehabilitation and ultimately a return back to performance (Magyar and Duda, 2000). Furthermore, when athletes become injured and are moved from

participation, they are required to rely upon rehabilitation progress and performance so to ascertain their confidence and readiness to return, thus identification of determinants over a period of time will lead to better assessments of athletes' performance and evaluation (Heil, 1993; Magyar and Duda, 2000; Vealey, 1998). What's more, a study conducted by Tracey (2003) concluded that individual athletes who were able to return to practise and/ or competition slowly, had a greater increase in confidence and mood. Of such sources social support alongside situational factors such as the climate of training and athlete's perception during injury all have been shown to be critical environmental factors (Taylor and Taylor; 2007; Gould et al., 1997a). What's more Gould et al., (1997) found that athletes' regularly turn to others to increase confidence and minimise their sense of loss. Therefore, perception of social support is of great importance and is found to be a positive predictor of adherence to rehabilitation (Magyar and Duda, 2000).

## **2.7 Phases of Injury**

With injury being supported by stress based models, it is implied, therefore, that physical and psychological recovery is viewed as dynamic and changeable with emotions and behaviours being rectified as having a cyclical framework (Weise-Bjornstal, 1998; Evans et al., 2011). Through the framework of phases of injury we are then able to get some analysis on how such responses change across the recovery of injury (Taylor and Taylor, 1997; Evans et al., 2011). Firstly, the initial return phase of injury is congruent with high emotional responses and mood disturbance, for example anxiety, fear, anger and confusion are prominent (Tracey, 2003). Furthermore Evans et al., (2011) explains that such antecedents of emotional turmoil consist of injury prognosis, financial worries, flashbacks of injury, personal and situational losses alongside missing training and team cohesion. Once then moving onto rehabilitation, during the early stages, athletes can be noted to still be greatly interrupted with such physical restrictions, therefore feelings of loss, isolation and depression can become more constant (Gould, 1977a; Tracey, 2003). Also athletes can become disheartened even bored of slow progress during rehabilitation because of such setbacks that threaten their rehabilitation goals and outcomes, this

can then lead to loss of motivation and adherence. It is also noted that during the return back to performance, athletes may feel pressurised due to expectation from team mates, coaches and the general public. This can lead to a decrease in confidence and increase within anxiety (Bianco, 1999; Bianco et al., 2001; Bauman, 2005). Such an increase in anxiety can manifest itself in different ways: re-injury, inability to perform to previous standards, feelings of isolation and a lack of athletic identity (Podlog, 2011). When focusing on re-injury anxiety it is much like a “Self-Fulfilling prophecy” as an athlete's appraisal and perception towards stress is noted to affect their coordination, muscular fatigue, and peripheral disruptions through narrowing vision and increasing distractibility, all of which lead to a higher risk of re-injury (Podlog, 2011; Williams and Andersen, 1998). Finally, feelings of restlessness can take hold in the near returning to sport, through demands placed upon an athlete via their coach, team mates and family. Such demands can lead to a player returning prematurely, this is self-perpetuating for it leads to a higher risk of re-injury (Bauman, 2005).

In conclusion, literature has pointed out the importance of the determinants across the spectrum of sport confidence and self-efficacy, in both a performance basis and injury basis within sport (Vealey, 1998; 2008; Bandura; 1997; Magyar and Duda; 2000). However, there has been a lack of research within the sources and their fluctuation across the recovery of rehabilitation within sport injury (Milne; 2005). Thus the current study aims to apply the phases of injury proposed within literature and indicate sub-groups in which determination of what sources of confidence are most congruent with each phase will be established (Taylor and Taylor 2007; Evans et al., 2011). It is hypothesised that there will be noticeable difference in all three phases (Injury onset, rehabilitation and return back to sport) and that overall some sources will be much more prominent throughout all phases in comparison to others.

# CHAPTER 3

# METHODOLOGY

### **3.1 Research design**

The current study aims to investigate into the sources of confidence and how their use changes across the phases of an athlete's recovery from injury. A quantitative approach seemed best fitting for the given study, given that quantitative research is acknowledged for its vast amount of data and its ability to help determine relationships, changes within variables and hypotheses alongside frequency (Hoe, 2012). What is more quantitative approaches have largely been considered much more rigorous when comparing to a qualitative method, due to randomised control trials and systematic reviews being of good standard for determining evidence (Sackett et al., 2000; Hoe, 2012). Within the current study use of a structured questionnaire was the preferred method of data collection due to their capability of gathering large amounts of information enabling more in depth scientific and applied forms of research alongside the answers being more quantifiable and useful within earlier stages of research when researchers are trying to gather an understanding of the area (Thomas and Nelson, 2001).

### **3.2 Participants**

A decisive number of people took part in this study. The following requirements were deemed important: a) all athletes had sustained an injury through sport participation or performance which would require no less than two weeks of recovery before being able to engage competitively again. b) That the given athletes had not returned to sport prior to six months previous from undergoing participation within the current study. Within the current study 51 participants of which 26 being male and 25 being female participated, ages of the participants ranged from 18 to 55 years of age. Individual sport athletes comprised of 25 and team sport players consisted of 26. Injuries consisted of muscular tears, ligament sprains, tendon ruptures, fractures and broken bones.

### 3.3 Measures

#### Sources of self confidence

The *Modified Sources of Sport-Confidence Questionnaire (M-SSCQ)* proposed by Magyar and Duda (2000) was used to assess athletes' sources of confidence information. The M-SSCQ comprises of 43 items and 9 subscales including mastery (ability to improve rehabilitation skills) which consists of five items (Questions), demonstration of ability (demonstrating ability better than others) six items, physical self-presentation (Feeling good in one's physical appearance) three items, mental/physical preparation (the ability to sustain mental focus on the task at hand) six items, social support (informational support about injury from physiotherapist) six items, vicarious experiences (ability to gain confidence from watching role model athletes overcome obstacles and perform well) five items, environmental comfort (feeling comfortable and happy with one's surroundings in the rehabilitation setting) four items, situational favourableness (seeing things go their way) three items and leadership (belief in their trainers ability) consisting of five items. Items were completed on a Likert scale ranging from (0) (not at all confident), to (7) (being always confident).

Vealey (1998) reported internal consistency values of .71 to .93. However recent findings by Wilson et al. (2004) SSCQ revalidation test, noted that situational favourableness was of little support as a source of confidence within the rehabilitation setting, this was due to the sampling error being noted as a cause behind the poor fit. Therefore, due to inconsistencies with the reliability of the SSCQ within such previous research (Wilson et al., 2004; Magyar and Duda, 2000) a reliability test was completed for the M-SSCQ so to establish internal reliability.

### **3.4 Procedures**

Participants were asked to complete a demographic participation sheet (DPS) alongside the MSSCQ questionnaire and give consent for use of the data. The DPS form given to each participant before completion of the MSSCQ, requested information on the injury severity, type and point of recovery (time since injury occurrence and regarding how far through injury severity recovery the individual was). This information then allowed the allocation of sub groups in the study. These consisted of the three phases of recovery: injury onset, rehabilitation and return to sport. All participation within this study was optional and voluntary. The author contacted any injured athletes who met the criteria for participation within the study, asking them if they wished to participate. After contacting the participants, both the athletes and author agreed on a time and meeting, where by the athlete was assured of complete confidentiality and anonymity with regards to participation within the study. Once the convenient location and time was acquired the athlete was administered with a participant package which comprised of the M-SSCQ, DPS, and participation information sheet and consent form. Before completion of the M-SSCQ, the author explained to the participant that there was no right or wrong answer, and that honesty and their true response was most appreciated. At all times the author was available for any queries with regards to the questionnaire and/or procedure of the study. The author thanked the participants for their help and filed the data for later data analysis.

### **3.5 Data Analysis**

Before conducting the main analysis, internal reliability of the nine subscales of the M-SSCQ was examined. Subscales which reported Cronbach Alpha values above .70 were deemed satisfactory (Nunnally, 1978; Lance et al., 2006). Subscales that scored an alpha of below .70 were examined to assess the extent at which any of the items (questions) were detracting from the overall subscale's reliability. When

any single item was reducing the subscales alpha to below an acceptable level, this item was deleted in order to increase the subscales reliability. Internal reliability was recalculated to make sure that any item removal did not affect overall reliability.

Once all subscales had been deemed internally reliable, a MANOVA was used to test whether there were any significant differences between the sources of confidence used by athletes across the three phases of injury. Use of a MANOVA is noted to be better than use of repeated ANOVA, with regards to the current study as there, were high numbers of dependant variables being measured. Moreover MANOVAs have been proven to have a less chance of making a type I error as it accounts for the relationship between outcome variables (Field, 2009). All underlying assumptions of parametric tests were checked before performing the MANOVA. A value of significance  $p < 0.5$  was adopted. All analyses were conducted using SPSS for windows version.

# CHAPTER 4

## RESULTS

#### 4.1 Scale reliability

Internal reliability of each subscale within the M-SSCQ was calculated using Cronbachs alpha (1951). All original reliability scores as well as final reliability scores after item deletion are presented in *Table 4.1*. Acceptable scores ranging from .703 to .920 were found for all subscales with the exception of situational favourableness and environmental comfort (.511). Interestingly, Magyar and Duda (2000) questioned the suitability of situational favourableness for the rehabilitation environment, therefore the subscale was not used in the current study. In order to overcome the marginally low alpha presented within environmental comfort one item was removed from the environmental comfort subscales (i.e., “Following certain ritual e.g. wearing a lucky shirt, eating certain foods etc”). In doing so the recalculated alpha score was .83 so it was retained for subsequent analyses.

**Table 4.1 Original and final coefficient alphas for the subscales of the M-SSCQ**

	Original $\alpha$	Final $\alpha$
Mastery	0.77	0.77
Demonstration of ability	0.86	0.86
Mental/physical preparation	0.7	0.7
Physical self-perception	0.88	0.88
Social support	0.88	0.88
Vicarious Experience	0.89	0.89
Environmental comfort	0.51	0.83
Situational Favourableness*	0.35	N/A
Coach/physios leadership	0.92	0.92

\*alpha value failed to meet the criterion.

## **4.2 Confirming Underlying Assumption**

Before carrying out the MANOVA, the underlying assumptions were tested. All subscales except from physical self-presentation met the homogeneity of variance assumption ( $p > .05$ ) (Field, 2009). However caution due to violation of the Levene's test with regards to interpretation of Physical Self Presentation subscale must be considered. One factor noted by Field (2009) that can lead to such a violation of homogeneity is the disparities in sample sizes. The assumption of multivariate normality was also tested to measure the dependant variable's (Sources of confidence) multivariate normality within the groups (Phases of injury). The test statistics for Box's Test of Equality of Covariance Matrices was non-significant (.574) therefore, the covariance matrices are near equal and the assumption is tenable (Field, 2009).

## **4.3 MANOVA**

Results from the multifactorial MANOVA (onset versus rehabilitation, onset versus return to sport and rehabilitation versus return to sport) reported a multivariate result of .719 (Table 4.3). Due to the alpha being ( $>P.05$ ) it was concluded that no significant differences had been accounted within the use of the subscales across the phases of rehabilitation. Therefore, no follow-up tests were conducted.

**Table 4.2 Means, standard deviations and *p* values for the subscales of M-SSCQ for athlete's across the three phases of rehabilitation from injury.**

	Phases	Mean	SD
Mastery	Onset	5.07	0.90
	Rehabilitation	4.62	0.82
	Return to Sport	4.38	1.28
Demonstration of ability	Onset	4.44	1.05
	Rehabilitation	3.84	1.42
	Return to Sport	3.68	1.55
Mental/Physical Preparation	Onset	4.61	1.05
	Rehabilitation	4.26	0.95
	Return to Sport	4.22	1.15
Physical Self Presentation	Onset	5.33	1.15
	Rehabilitation	4.68	1.49
	Return to Sport	4.39	2.15
Social Support*	Onset	5.80	0.64
	Rehabilitation	5.56	1.05
	Return to Sport	5.33	1.41
Vicarious Experience	Onset	4.24	1.21
	Rehabilitation	3.28	1.38
	Return to Sport	3.80	1.28
Environmental Comfort	Onset	5.08	0.96
	Rehabilitation	4.32	0.89
	Return to Sport	4.22	1.35
Coach/physios Leadership**	Onset	5.78	0.86
	Rehabilitation	5.42	1.00
	Return to Sport	5.07	1.57

\*= Highest reported subscale across all three phases.

\*\*= 2<sup>nd</sup> Highest reported subscale across all three phases.

**Table 4.3 Multivariate Tests**

	(p)	F	Value
Pillai's Trace*	.719*	.765	.254
Wilks' Lambda	.727	.758	.759
Hotelling's Trace	.735	.750	.300
Roy's Largest Root	.350	.152	.219

\*= Chosen recorded multivariate

Table 4.2 presents some changes for the subscales means and standard deviations across the three phases of injury. Firstly, being that a trend within the athletes' use of the sources across all subscales was noticed. All subscales except from Vicarious Experiences reported the same findings, in that onset was noticed to be the most prevalent period for use of the sources followed then by rehabilitation and return to sport. Furthermore, it was also noted that Social support followed then by coach's/physiotherapists leadership where considered the highest used sources across all three phases of injury.

# Discussion

## 5.1 Introduction

The purpose of the current study was to investigate how use of the sources of confidence changed across different time periods (phases) of recovery from sport injury. Results showed that there were no significant changes within the subscales due to a multivariate test “Pillai’s Trace” score of .719. However means presented within *Table 4.2* do show that there has been some change within these subscales at the different given points of injury recovery. The following chapter, presents a discussion and analysis of these results, firstly exploring the sources in more depth whilst regarding the current study’s findings. After this, the second section will reflect upon theoretical, conceptual and practical implications that can be derived from these findings, whilst the third section will discuss limitations of the research design and results of the present study, recommendations for future and finish with a conclusion.

## 5.2 Sources of Confidence and Phases of Rehabilitation

The results of the study showed no significant differences between the sources of confidence and their use across the phases of rehabilitation. However, means presented within *table 4.2* show some difference within all subscales. In particular Environmental comfort reported the greatest difference across the phases, with it being used most within the early onset phase (mean= 5.08) of injury followed by rehabilitation (mean= 4.32) and lastly return to sport (4.22) (*Table 4.2*). Indeed Evans’ et al., (2011) explains how the injury onset period is noted as short lived yet the most intense period for athletes with regards to emotions. Therefore, due to such heightened emotional responses in conjunction with loss of identity, self-esteem, independence and mobility/fitness it is not surprising that athletes turn to external sources such as environmental comfort as opposed to performance based sources for confidence restoration as they do not have the capability to perform or be independent for themselves (Evans et al., 2011; Tracey, 2003). Moreover, it could be assumed that such findings may have placed reasoning behind the noted decreased importance within environmental comforts use from the current study, as the onset

periods mean score was higher than both rehabilitation and return to sport when regarding the sources use (Table 4.2).

Although vicarious experiences was non-significant within differences, the means presented within *Table 4.2* show some difference in that onset of injury noted the highest use followed by return to sport and lastly rehabilitation. Magyar and Duda (2000) found that vicarious experiences used during the onset of injury were predictors for athletes' confidence restoration later within recovery during both rehabilitation and returning back to performance. In addition during onset athletes can feel overwhelmed with their lack of ability to function normally (Evans et al., 2011). Therefore vicarious experiences can be considered a good intervention for confidence in situations where athletes may have limited knowledge about their capability to perform a task alike to the onset period of injury (Feltz et al., 2008). With regards to returning to sport as noted by Feltz et al. (2008) modelling can provide instructional information, by showing that a challenge such as returning back to performance can be surmountable.

In relation to social support, onset showed the highest use followed by rehabilitation and return to sport. Previous research has recognised that social support can help to redefine the threat posed by a stressor, alter ones perception of ability to cope and lead to greater autonomy, all of which improves the athlete's confidence (Evans et al., 2010; Cohen et al., 2000; Hays et al., 2007). Moreover, from an injury perspective social support helps to moderate the negative relationship found between stressors and psychological responses (Evans et al., 2010; Evans et al., 2011). Interestingly, within the current study social support reported the highest scored means in comparison to all over subscales at all three phases of rehabilitation. Therefore, such conclusions raised by previous research implying social supports importance and ability to be salient as a source of confidence within the athlete's recovery from injury, particularly regarding one's beliefs and adherence levels would appear supported within the current study's results (Niven, 2007; Brewer, 2010). Furthermore, the need for more social support within the current study's findings during onset of injury could be due to the athletes' requirements for

greater emotional and informational support, when considering previous researchers findings; of high emotional turmoil, lack of understanding and reduced physical capability (Evans et al., 2011; Tracey, 2003; Brewer; 2010).

The coach/physiotherapist's leadership was the second most prevalent source across all three phases. The means during onset of injury was the highest followed then by rehabilitation and return to sport. These results contrast with those of Magyar and Duda (2000) who found a significance within the importance of the athlete's perceived leadership qualities of their athletic trainer, when regarding confidence particularly at the given phase of return to sport, followed then by rehabilitation and lastly onset. Moreover, previous research implores that the coach/physiotherapist's leadership has significance to the athlete's confidence, particularly with the shock of during onset, challenges and setbacks presented during rehabilitation and the decision to return back to sport (Bianco, 1999; Evans, 2010; 2011). Therefore, the current study helps to aid previous research in the conclusion that the coach/physiotherapist's leadership has much importance with regards to the athlete's confidence throughout the recovery from injury, through its showing of the sources importance across all three phases of injury.

For the performance based sources of confidence; mastery and demonstration of ability, onset of injury was the highest within means followed then by rehabilitation and return to sport. In contrast, previous research by Magyar and Duda (2000) found there was a greater significance during rehabilitation and return to sport in relation to the athlete's perception of confidence restoration. This was to be expected as, among all sources, performance accomplishments are noted to be most influential with regard to future confidence beliefs (Ewart, 1990; Kingston, 2010; Magyar and Duda; 2000). Furthermore, Magyar and Duda (2000) also noted that mastery and demonstration of ability were not significant predictors of the athletes' perceptions of self-confidence at the onset of injury. It was suggested that the early period of injury was hard for athletes to acknowledge which sources held most importance in helping them regain their confidence (Magyar and Duda, 2000).

Both physical/mental preparation and physical self-presentation had the highest means of use during onset followed then by rehabilitation and return to sport. Previous research conducted by Hays et al., (2007) found that world class athletes use physical/mental preparation through conduction of mental skills; pre-performance routines, anxiety/emotional control, self-talk and goal setting and that high importance was placed on these interventions for increasing their confidence (Hays, 2007; Thomas et al., 2007). Furthermore, physical/mental preparation is noted to be a self-referenced source of information as it regards the athlete's ability level and understanding on how to use such mental skills during difficult adversaries such as injury (Kim and Duda, 1999). Therefore, with regards to the present study, differences within the level of participation in sport across the participants was noted, as over two thirds of the participants were of respective club and regional levels. As such the understanding of mental skills and there use for preparation and confidence restoration can be assumed to greatly differ over the current study's participants, suggesting that future research could investigate into the respective levels (club, regional and national/international) separately with regards to the athlete's use of the sources of confidence across the three phases of injury.

When regarding physical self-presentation within sport performance, it has been noted that changes significantly increase as major competition approaches (Kingston, 2010). Similarities between returning back to performance from injury and major competition can be noted, as both hold significant importance on the athlete, therefore assumption that physical self-presentation would be higher in prevalence during return to sport for confidence restoration in comparison to the other two phases can be made (Kingston, 2010; Magyar, 2000). However, in contrast it was found that onset presented the highest means score within the current study. Therefore, further qualitative research looking into how the source physical self-presentation is derived and used during each phase of injury, particularly onset would be of significant importance, as this would provide further understanding on findings presented within previous research and the current study.

However, previous research has concluded that physical self-presentation has been linked as one of the lowest scoring sources in terms of performance, this has been proposed to be due to perceptions of body type and looking good being linked as a source of stress (Kingston, 2010; Hanton, Fletcher and Coughlan, 2005). Therefore, precaution must be placed when regarding application for use of this source within confidence restoration during injury recovery, as injury is already seen and linked as stressful event with many negative responses (Williams and Andersen, 1998).

### **5.3 Practical Implications**

The current study has a number of practical implications. All sources except for vicarious experiences were noted to score higher use during onset of injury, followed then by rehabilitation and return to sport. Furthermore, social support and coach/physiotherapist leadership were noted to be the most prominent sources used across all three phases of rehabilitation. Overall, the current study has targeted an area of sport injury research which has been lacking attention. Such a study has started the process of understanding the fluctuation of sources used by athletes across injury recovery, this amongst further research when applied will give practitioners greater understanding in what sources can be detrimental or effective in building and maintaining confidence during the differing phases of injury (Magyar and Duda, 2000).

Social support as a source of confidence throughout all periods of injury was identified as being the most important source. Likewise it was also noted that the use of social support was most prevalent during onset closely followed by rehabilitation. Therefore, it is important that practitioners, coaches, team mates and family are educated into both the detrimental effects of poor social support (i.e. lowered self-esteem, decreased adherence, isolation and increased negative emotions) whilst also understanding the positive effects correlated with good social support (i.e. increased self-esteem, increased motivation, positive perceptions) (Evans et al., 2010;2011; Tracey, 2003). Such an understanding would allow for coaches to

understand the athlete's needs for effective goal setting, intervention application and ease of external pressures all of which can lead to a successful recovery from injury. Furthermore, family and team mates would know how to best emotionally support the injured athlete during crucial points of injury, such as the heightened emotional responses during the onset of injury. Again this could be noted to increase the likelihood of a successful return to sport for the injured athlete (Tracey; 2003), whilst also providing the physiotherapist with the knowledge of how informational support can affect the athletes psychological responses during injury (Motivation and self-confidence increase) again especially during onset and rehabilitation. Overall if psychologists were able to emphasise the importance of the psychosocial effects of injury alongside the requirement for effective and supportive use of social support, whilst also having full support from the athletes physiotherapists, coaches and family a much more effective climate for the injured athlete would be noted with an increase in more successful returns from injury within sport.

Another source of frequent use across the three phases of injury noted was the coach/physiotherapists leadership. It must be recognised that the importance for coaches and physiotherapists to provide effective leadership throughout injury is essential in regards to the athlete's recovery from injury. Effective leadership helps athletes to deal with heightened negative responses, provides them with a sense of support and a positive outlook on overcoming the barriers and setbacks present within injury (Tracey, 2003; Bianco, 1999; Bianco et al., 2001). Therefore, teaching coaches and physiotherapists the importance of positive leadership in comparison to negative along with both possible outcomes, will emphasise the need to establish a sound support network in which effective treatment based around both physical and mental aspects of injury recovery need be established.

A further practical implication was how the onset period was noted to be the most predominant phase in which all subscales were used. This is in difference to previous researches findings (Magyar and Duda, 2000), suggesting that practically the sources of confidence hold much importance in confidence restoration and smooth transaction through the early period of injury. Therefore importance should

be placed on practitioners to understand the need of the athlete to have fulfilment of the variety of sources (i.e. Social support coach/physiotherapist leadership) of confidence especially during the onset period of injury, so to allow for effective treatment in getting the athlete back to peak performance

#### **4.4 Strengths and Limitations**

The current study had a number of strengths and limitations. With regards to its strengths, it addressed an area within sport psychology that had been noted within previous research to need more attention (Tracey, 2003; Magyar and Duda, 2000). A further strength was the generalizable sample, as athletes where of both genders, competed in a range of both individual and team sports alongside also having different types and levels of severity with regards to their injuries.

The study also had a number of limitations. Firstly the number of participants within the study was noted to be small with 17 participants within each phase. In conjunction, it has been suggested that a small sample size makes it difficult to find significant relationships and differences, as a larger sample size ensures a representative distribution of the population and groups (Field, 2009). Another limitation was the use of different participants at each given phase of recovery from injury. It would have been preferable to conduct a longitudinal study in which the participants where measured repeatedly at the three given points during their recovery from injury, in which the results would then interpret how use of the sources of confidence changed across the recovery from injury for the participating athletes on personal levels. Moreover, use of longitudinal studies have been regarded to add substantial theoretical conclusions in which understanding of improvement or regression of the findings can regularly be noted (Kull and Narasimhan; 2012).

One final limitation that was noted was concerning the reliability of the M-SSCQ. One subscale was removed from the questionnaire with an alpha level of .35 whilst another subscale was further retained after deletion of one item due to the previous alpha being .53. In conjunction to this Magyar and Duda (2000) had previously reported that situational favourableness showed unreliability within its use as a subscale within confidence when regarding the injury and rehabilitation environment of sport. Therefore, modification could be made to the current MSSCQ to specify it more towards the injury respective.

#### **4.5 Recommendations for Future Research**

A number of possible paths for future research can be identified from the present study. It is important that any future research into the use of the sources of confidence across the phases of rehabilitation has a much larger sample size so to prevent type I errors and insignificant (Field, 2009). Furthermore, possibility of a longitudinal study, in which the same participants are measured across the three phases of recovery from injury may shed light on changes across time. Previous research by (e.g. Evans et al., 2011) has already iterated that athletes' responses can change over the time of injury recovery, which is also in attune with possible fluctuations within sources of confidence use (Tracey, 2003; Magyar and Duda, 2000). Furthermore, research could use a qualitative approach, so to find the reasoning behind the perceptions of the athletes and their use of the sources of confidence across the time of injury. In doing so more detail and greater understanding of the topic would be achieved allowing for better application of interventions in helping athletes restore their confidence during the recovery from injury. Finally, improvement on the SSCQ measurement tool for future research could be undergone, so to improve on such sources as situational favourableness amongst any reports of other subscales.

#### **4.6 Conclusion**

In conclusion, the current study endeavoured to investigate into the differences of the sources of confidence and their use across the phases of rehabilitation when recovering from injury. No significant differences were found between the sources of confidence and their use for the participating athletes within the three phases of injury. None the less, differences within the means did present some findings of interest. It was noted that a trend had occurred within the sources of confidence and their use, the onset period was indeed shown to have prevalence within use amongst all subscales except from Vicarious Experiences, this was then followed by rehabilitation and return to sport receiving the least prevalence. Furthermore, in conjunction with previous research Social Support was noted to be of great importance with the highest use across all the phases in comparison to all other subscales, this was then closely followed by the Coach/Physiotherapists leadership which came second within the greatest use across all phases of recovery. Overall, the current study did address a gap within the sport-confidence literature, through accounting how the sources changed in use across the time periods of recovery from injury. Although non-significant findings were established it is important to note that current study did come with limitations such as a small number of participants. Therefore, further research should be conducted to explore the sources of confidence and how their use changes across injury recovery, due to possible significant findings and further understanding being highly plausible.

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# Appendices

# **Appendix A Participant Information Sheet**

Title of Project: An Investigation In to the Sources of Confidence across the Phases of Injury Rehabilitation

## Participant Information Sheet

### Background

This academic project is attempting to look into sport injury on a psychological basis. Much current research has considered the psychological effects an individual athlete experiences when becoming injured. Hence, the following investigation is regarding one major factor that has a role to play within an athlete's rehabilitation commitment and programme; "Sport Confidence". Through the assistance of Cardiff School of Sport at Cardiff University, this project aims to gain knowledge through questionnaires on how individual athletes perceive their sources of confidence across different periods of injury, during rehabilitation.

In brief, this investigation is concerned with making treatment efficacy more effective at getting individual athletes back to competitive performance, through its regards on the athlete's sources of confidence during different phases (time since) of injury.

Main areas the project will examine consist of:

- I. Sources of confidence and how these change/stay the same, across the time period since injury.
- II. What sources of confidence are deemed important to most participants and why this is? What sources of confidence are less important amongst the participants and why?
- III. How such findings then encompass changes in treatment efficacy so to make improvements within injured athletes' self-confidence throughout rehabilitation.

Your participation in this research project

### Why you have been asked

You have been invited to take part in this academic project because it is believed that your information would be essential to achieving more knowledge on this subject. Amongst this it is thought that you will benefit from the final results and conclusions drawn from the data collected during this research as well as benefiting others including therapist, coaches and other injured athletes.

What would happen if you agree to take part?

- I. You will be given a consent form so to clarify that it is ok to use all information received from your questionnaire within the study purpose and literature write up.
- II. Following this you will be offered a questionnaire, (which will take no longer than 10 minutes) where you will be required to fill out and give personal details on your experience of your injury and how it affected your sport confidence, amongst what sources helped you.
- III. Once all participants have been obtained and all the data needed has been gathered an analysis will be drawn up into the findings from the results.
- IV. Finally an email will come back to you once the dissertation write up and analysis has been finished. This will notify you on the results of the study and what this means within future research.

Are there any risks?

We do not think that there are any significant risks whilst taking part in this investigation. However, if the individual feels highly emotional or traumatised by their injury, then we do not recommend you to take part as this will require your personal feelings and opinions greatly on this matter. However, seeking advice or help when needed through your doctor or personal therapist in extreme cases is always recommended.

What happens to the results of the investigation?

All questionnaires that are taken at the start of the study will be filed and kept in the student's personal belonging in a safe cabinet. All questionnaires will be coded so that the names can be removed to help keep your personal privacy. However, the codes will be required to be kept, so to be able to compare the findings of each participant. Once the write up has been conducted, privacy will be maintained and only the codes will be used to explain the findings from the investigation. No personal information will be given away, all that will be talked about is relevant material such as your sport type, injury and rehabilitation experience.

The material will be used in a student's dissertation and will be marked by superior lecturers which he/she will then receive a mark towards their BSc degree grade.

At the end of the study and write up, all information such as questionnaires, consent and assent forms will be destroyed so as to keep your privacy safe.

Further Information

If you have any questions about the research or how I intend to conduct the study then please contact me via.

Reece Jack Johnson (3<sup>rd</sup> year Student BSc Sport Conditioning, Rehabilitation & Massage)

Email: [reecejackjohnson@gmail.com](mailto:reecejackjohnson@gmail.com)

Phone: 07932583470

# Appendix B Consent Form

Cardiff Metropolitan University

## INFORMED CONSENT FORM

**Title of Project: An investigation in to the sources of confidence across the phases of injury rehabilitation and it's relation to treatment efficacy.**

**Name of Researcher: Reece Jack Johnson**

**Participant to complete this section:                      Please initial each box.**

- |   |                          |
|---|--------------------------|
| <p><b>1. I confirm that I have read and understand the information sheet for this evaluation study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.</b></p> | <input type="checkbox"/> |
| <p><b>2. I understand that my participation is voluntary and that it is possible to stop taking part at any time, without giving a reason.</b></p>  | <input type="checkbox"/> |
| <p><b>3. I also understand that if it happens, our relationships with Cardiff Metropolitan University, or our legal rights will not be affected.</b></p>  | <input type="checkbox"/> |
| <p><b>4. I understand that information from the study may be used for reporting purposes, but I will not be identified.</b></p>   | <input type="checkbox"/> |
| <p><b>5. I agree to take part in this study on the sources of sport confidence within sport rehabilitation from injury.</b></p>   | <input type="checkbox"/> |

\_\_\_\_\_  
Name of Participant

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

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

\_\_\_\_\_  
Date

# 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?

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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?

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

## Appendix D Modified Sources of Sport Questionnaire (M-SSCQ).

### 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

		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



