

**UNIVERSITY OF CHICHESTER**

Department of Sport and Exercise Sciences

**From Knowledge to Practice: Translating the Psychosocial  
Sports Injury Literature into a Creative Resource for Sports  
Injury Rehabilitation Professionals**

By

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**Abstract**

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Thesis for the degree of Doctor of Philosophy

**From Knowledge to Practice: Translating the Psychosocial Sports Injury Literature into a Creative Resource for Sports Injury Rehabilitation Professionals**

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Over the past five decades, the psychology of sport literature has demonstrated the powerful physical, social and emotional consequences of sustaining a sporting injury. In particular, the focus of this literature has been on understanding athletes' responses to injury, and consequently on providing adaptive psychosocial strategies for rehabilitation. Yet this thesis suggests that at present, a gap exists between knowledge creation and knowledge translation. With this in mind, this thesis aims to bridge the gap between knowledge and practice within the context of sport injury. Drawing on Graham et al.'s (2006) knowledge-to-action framework this thesis includes a series of phased work that moves knowledge from creation to translation. Phase one used a meta-study of the qualitative sport injury literature to synthesise existing knowledge on the psychosocial response to sport injury. A total of 54 synthesised articles identified seven themes, which not only highlighted a series of philosophical and methodological insights, the need to consider the holistic aspects of the injury process. Phase two aimed to identify, assess and move beyond the barriers faced by Sports Injury Rehabilitation Professionals (SIRPs) when trying to access knowledge on the psychosocial aspects of sport injury. A total of 72 SIRPs identified a need for future professional training to be accessible, specifically in terms of time, practicality and audience. Phase three used the accumulated insights to create a knowledge translation tool designed to educate SIRPS on the psychosocial aspects of sport injury. Drawing on Goodson and Gill's (2011) framework of narrative learning as a structure, a series of creative non-fiction stories, video animations and reflective questions were created. These combined to produce an online knowledge translation course. The final phase focused on monitoring knowledge use and evaluating the knowledge translation tool. Results highlighted how the designed knowledge translation tool was able to help SIRPs move beyond just understanding the material offered, to instead reflect, integrate and apply the research evidence after engaging with the knowledge translation tool.



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# Declaration of Authorship

I, Kimberley Dawn Humphrey

declare that the thesis entitled

From Knowledge to Practice: Translating the Psychosocial Sports Injury Literature into a Creative Resource for Sports Injury Rehabilitation Professionals

and the work presented in the thesis are both my own, and have been generated by me as the result of my own original research. I confirm that:

- this work was done wholly or mainly while in candidature for a research degree at this University;
- where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
- where I have consulted the published work of others, this is always clearly attributed;
- where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
- I have acknowledged all main sources of help;
- where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
- none of this work has been published before submission

Signed: .....

Date:.....



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# **Publications & Presentations Arising from This Thesis**

## **Book Chapters**

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Day, M., & Humphrey, K. (in press). But we've always done it this way: The future of qualitative injury research. In R. Wadey (Ed.), *Sport Injury Psychology: Cultural, Relational, Methodological, and Applied Considerations*. Oxon: Routledge.

## **Conference Presentations**

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Humphrey, K., Day, M., & Wadey, R. (2016). The Who, What, Why & How of Utilising Diary Methods. 5<sup>th</sup> International Conference on Qualitative Research in Sport and Exercise, Chichester, U.K.



## **List of Abbreviations**

A&E	Accident and Emergency
CIHR	Canadian Institute for Health Research
CPD	Continuing Professional Development
CSP	Chartered Society of Physiotherapy
CTSA	Clinical and Translational Science Awards
DNA	Dialogical Narrative Analysis
HCPC	Health and Care Professions Council
KTA	Knowledge-to-Action
LMS	Learning Management System
MRC	Medical Research Council
NATA	National Athletic Trainers Association
NCATS	National Centre for Advancing Translational Science
NHS	National Health Service
NIHR	National Institute of Health Research
PSI	Psychology of Sport Injury
SIRPs	Sport Injury Rehabilitation Professional

SSL	Secure Sockets Layer
SST	Society of Sports Therapists
USA	United States of America
WHO	World Health Organisation

# **Chapter One: Introduction**

## **1.0 What is this PhD about?**

This PhD demonstrates how existing research insights into the psychology of sport injury can be translated in creative and user-directed ways to support sport injury rehabilitation professionals (SIRPs). Over the past three decades there has been a wealth of research on the psychological and social impacts of sustaining an injury. Yet despite this burgeoning research interest, results are most frequently published in a traditional academic style and in journals unfamiliar to SIRPs. Consequently, there is a need for more accessible, user-directed resources that could be used by SIRPs to better understand the psychosocial impacts of sport injury. Underpinned by the Knowledge-to-Action Framework (Graham et al., 2006) and drawing upon a range of qualitative research methods this PhD explores the development of a knowledge translation tool for SIRPs. This thesis takes the reader through the process of knowledge translation, from the initial knowledge synthesis through to the design, creation and implementation of a user-directed intervention. Finally, as the thesis concludes I provide my own reflections on how knowledge translation may subsequently be used to assist the psychosocial development of SIRPs.

## **1.1 Background**

In the United Kingdom (UK), the National Health Service (NHS) Accident and Emergency (A&E) services recorded over 1,076,696 sport-related injuries in a four-year period from April 2015 to March 2019 (National Health Service, 2017; 2018; 2019). Of all categorised injuries (excluding other and not known), sport-related injuries were the highest ranked category seen by A&E departments across the UK. To offer some context to this statistic, more patients were seen with a sport-related injury compared to those who had been in a road traffic accident (totalled 743,114). Yet these figures are further compounded when considering that whilst approximately 2950 injuries are reported to A&E departments every day, this figure represents only the most severe sport injuries which require hospital treatment. There are likely to also be a number of moderate and minor injuries being treated by alternative NHS services (e.g., self-referral routes to physiotherapy, general practitioner consultations), private services (e.g., physiotherapists, osteopaths, sports therapists), or which are self-managed.

As the above statistics indicate, sustaining an injury may be considered a routine part of being an athlete, regardless of the level of competition. Whilst a multidisciplinary team may be advocated for rehabilitating athletes after injury (Hess, Gnacinski, & Meyer,

2019; Wiese & Weiss, 1987), most often this level of support is reserved for elite or professional athletes. Yet, the majority of those participating in sport do not reach this level of play and therefore face restricted access to the very care that may help them return to sport (Kolt, 2000). Instead, SIRPs are often the primary rehabilitation providers, forming the front line of both physical and psychological support for athletes during the rehabilitation process (Hess et al., 2019). SIRPs, is the collective term referring to a series of professions that help to rehabilitate athletes who have sustained a sport injury. These include professions such as physiotherapists, sports therapists, athletic trainers, osteopaths and physical therapists.

Even though SIRPs may be best positioned to educate and assist athletes with their psychological and physical recovery, existing research has demonstrated that SIRPs feel poorly equipped to fulfil the psychosocial aspects associated with this role (Arvinen-Barrow, Penny, Hemmings, & Corr, 2010; Gordon, Potter, & Ford, 1998). The root cause of this concern has been suggested to be inadequate training and support regarding the psychosocial aspects of sport injury (Jevon & Johnston, 2003; Washington-Lofgren, Westerman, Sullivan, & Nashman, 2004). SIRPs frequently operate in isolation and without access to professional sport psychology services (Arvinen-Barrow, Hemmings, Weigand, Becker, & Booth, 2007; Clement, Granquist, & Arvinen-Barrow, 2013). Furthermore, it has been suggested that SIRPs receive inadequate training in the psychosocial aspects of sport injury at an undergraduate level and there are no ongoing professional training activities available to bridge this gap (Heaney, Green, Rostron, & Walker, 2012; Heaney, Walker, Green, & Rostron, 2015). If we are to move the field forward, then attention needs to be placed on identifying the training requirements of SIRPs and facilitating effective educational tools to appropriately equip SIRPs with knowledge on the psychosocial aspects of sport injury.

## **1.2 Overview of the Thesis**

This thesis comprises of eight chapters in total. Following this introductory chapter, chapter **two** sets the scene for this programme of research. First, by providing contextual information on the role of SIRPs, their training requirements, and outlines existing literature that has sought to provide psychological skills training. Second, by outlining methodological underpinnings of the thesis. Next, chapter **three** begins by considering how knowledge can be translated into practice and then provides a more specific focus

on Graham et al.'s (2006) Knowledge-to-Action Framework.

The remaining chapters each address a stage of the Knowledge-to-Action Framework. Chapter **four** focuses on the initial stage which synthesises the existing literature. In this chapter, a meta-synthesis was conducted of 52 published articles on the psychosocial response to sport injury. Results from this meta-synthesis provide insight into the current research landscape from an empirical, theoretical and methodological perspective. Of particular importance to educating SIRPs, the chapter outlines seven themes that represent the current literature on the psychosocial aspects to sport injury: injury culture, athletic identity, underlying factors underpinning responses to sport injury, navigating the rehabilitation process, coping with injury, social support, and benefits of sport injury. These themes were later used to underpin the educational tool that was delivered. Chapter **five** then progresses to the next stage of the knowledge translation process, which focuses on assessing barriers to knowledge translation, before considering how knowledge could be adapted to the local context. This was achieved by using a survey to explore SIRPs previous experience of professional training activities. Results presented in this chapter underline the types of activities SIRPs found effective and ineffective, and their requirements for future training activities.

Drawing on the insights from chapters four and five, chapter **six** documents the process of selecting an approach to education (the use of narrative pedagogy) and creating the knowledge translation tool. The final developed tool combines three elements of learning (a) creative non-fiction, (b) video animations, and (c) participant reflections. This chapter outlines how these resources were created, refined and delivered. Chapter **seven** outlines the online delivery evaluation of the developed knowledge translation tool, through analysis of SIRPs reflections collected from the online tasks and either face-to-face or online interview questions. The thesis closes on chapter **eight**, which draws conclusions and extends the current literature to consider what new knowledge has been developed. Specifically, the chapter focuses on the empirical, methodological and practical implications of the research. Limitations of the thesis are then discussed, before final conclusions and future research directions are offered.



**Chapter Two:**  
**Contextualising the Programme of Research**

## **2.0 Overview**

This chapter aims to provide contextual information on two aspects that underpin this PhD thesis. First, it is imperative to situate this thesis in the contemporary literature on the psychological provision and training of SIRPs. Consequently, the literature is reviewed on the role played by SIRPs, the requirements for psychological training specified by their accrediting organisations, SIRPs perspectives on the current provision of training, and existing educational interventions for SIRPs. Following this, it is also important to methodologically situate this thesis, taking into account contemporary debates on topics such as methodological rigour. To do this, I explain my own philosophical position, outline the ethical consideration of this programme of research, and finally conclude by considering how the reader might judge this thesis.

### **2.1 The Role of Sport Injury Rehabilitation Professionals**

Traditionally, the role of SIRPs has been associated with the physical rehabilitation of injured athletes. In line with this, organisations such as The Society of Sports Therapists (SST) have defined the purpose of sport therapy as the “...rehabilitation of the patient back to optimum levels of functional, occupational and sports specific fitness...” (The Society of Sport Therapists, n.d). While a focus on the return to fitness implies that the role of sport therapists is physical in nature, a growing body of literature has highlighted that the physical, social and psychological aspects of sport injury are not as easily separated as we once thought (e.g., Brewer, 2010). Considering the interplay of the physical, social and psychological aspects of rehabilitation, it is perhaps not surprising that researchers have begun to illuminate the potentially important role played by SIRPs in providing psychological and social support for the injured athlete.

Research exploring SIRPs awareness of psychosocial difficulties in rehabilitation has suggested that SIRPs are capable of recognising the psychosocial impact of injury. For example, Arvinen-Barrow et al. (2007), Hemmings and Povey (2002), and Lafferty, Kenyon, and Wright (2008) all highlighted that SIRPs could recognise athletes who were negatively psychologically impacted by their injury. These studies reported that between 90-98% of SIRPs had worked with an athlete experiencing a negative psychosocial response to their injury. To provide details on the athlete responses identified by SIRPs, McKenna, Delaney, and Philips (2002) used a phenomenological approach. They suggested that SIRPs identified a range of athlete responses, from “injury as a

disaster...life has fallen apart...like a death...completely traumatic” to those who suggested that “it’s a slight set back” (p. 72). Yet despite being able to identify a range of psychosocial responses, these SIRPs saw their professional competencies in terms of the ‘body-subject’ and not the ‘mind-subject’.

The dynamic interaction between an athlete’s mind and body has prompted a call for SIRPs practice to evolve and adapt to include a more holistic or biopsychosocial approach to rehabilitation (Driver, Lovell, & Oprescu, 2019). Effectively moving beyond the biomedical discourse that typically underpins their practice, to embrace the psychological and social factors when treating or coordinating care (Alexanders, Anderson, & Henderson, 2015; American College of Sports Medicine, 2006; Arvinen-Barrow, Massey, & Hemmings, 2014; Dawes & Roach, 1997; Mudge, Stretton, & Kayes, 2014; Ninedek & Kolt, 2000; Tracey 2008). Paving the way for this shift in approach was the introduction of the International Classification of Functioning, Disability and Health (ICF) by the World Health Organisation (2013). A practical guide developed to outline a uniform approach to conceptualising and documenting functioning and disability, with the goal of encouraging practitioners to consider a biopsychosocial approach that integrates the major models of disability - the medical model and the social model (World Health Organisation, 2013). Whilst the biopsychosocial approach is not a new concept within the domain of sport injury psychology, Alonso (2004) suggested that SIRPs may experience difficulties implementing the desired changes. For example, this change would necessitate a greater effort from practitioners to expand their knowledge base to include a wider spectrum of factors (e.g., athlete goals, stage of career, impact of social relationships) and the adoption of a new style of patient-practitioner relationship (e.g., demonstrating empathy, congruence).

Despite these potential barriers, existing literature has shown that SIRPs are implicitly adopting a biopsychosocial approach, and even report that they view themselves as the logical choice for supporting the psychosocial aspects of sport injury, due to the central role they play in rehabilitating the physical injury (Jevon & Johnston, 2003; Moulton, Molstad, & Turner, 1997). Indeed, Kolt (2000) identified four reasons as to why SIRPs were ideally placed to provide psychosocial support to injured athletes. First, he suggests that due to regular contact and appointments with athletes, SIRPs often spend long periods of time with these athletes, gaining trust and building rapport. Second, the power of touch used during physical treatment may result in an emotional release, again meaning that athletes may feel more comfortable disclosing their injury experiences

to SIRPs. Third, it may be intuitive to concurrently discuss the physical and psychosocial process of rehabilitation as the two may be difficult to separate. Finally, athletes themselves often believe SIRPs may be in the best position to provide basic psychological support and can be reluctant to seek formal psychological help.

While Kolt (2000) clearly outlines why athletes may choose to turn to SIRPs about the psychosocial difficulties experienced during injury, Gervis, Pickford, Hau, and Fruth (2019) warn that "...successful rehabilitation may be related to the degree to which medical staff meet the psychological needs of long-term injured athletes" (p. 2). Their review of the psychological support mechanisms available for long-term injured footballers in the UK suggested that the majority of staff available to treat long-term injured players were physiotherapists. While 98% of first teams and academies across the English leagues, had a full-time physiotherapist, very few clubs employed a full-time sport psychologist. Overwhelmingly, clubs reported that they wanted to be able to access some kind of professional psychological support, either from a sport psychologist or through referral to other mental health specialists. Yet as Nesti (2010) highlights, despite ample financial resources being available this is not typical practice. Thus, in reality SIRPs often operate in isolation and without access to professional sport psychology services and support (Arvinen-Barrow et al., 2007; Clement et al., 2013).

Gervis et al.'s suggestions echo statements made in earlier research (e.g., Arvinen-Barrow et al., 2007; Heaney, 2006; Jevon & Johnston, 2003), yet it is perhaps alarming that the perceptions of availability of psychological support from accredited individuals has not changed over time. For example, Larson, Starkey, and Zaichkowsky (1996) and Arvinen-Barrow et al. (2007) both reported that just 25% of SIRPs had an accredited psychologist available to them. Further, research has also examined the number of SIRPs who have successfully referred an injured athlete to an accredited psychologist with a varied picture presented. For example, while some studies reported a relatively high number of 84% (Clement et al., 2013), others reported this to be much lower at just 24% (Arvinen-Barrow et al., 2007; Larson et al., 1996)

In summary, the research literature has demonstrated that SIRPs are aware of the psychosocial challenges faced by injured athletes (e.g., Arvinen-Barrow et al., 2007; Gervis et al., 2019). Their position of trust, time spent with the injured athlete, and a lack of availability of other healthcare professionals can position them at the forefront of psychological discussions. Consequently, it is imperative to also consider the psychological education required by SIRPs professional training bodies that might equip

them (or not) to take up such a role.

## **2.2 Current Training Requirements for SIRPs**

Professional bodies within the UK require SIRPs to undertake training in the psychological aspects of injury as part of their undergraduate qualification. This section outlines those training requirements, focusing on where and how psychology is embedded in the undergraduate training curriculum.

To achieve legal status as a physiotherapist, practitioners are required to comply with the Chartered Society of Physiotherapy (CSP) Physiotherapy Framework (Chartered Society of Physiotherapy, 2011) and the standards set by the Health and Care Professions Council (HCPC; Health & Care Professions Council, 2013). The standards set outline the required levels of knowledge for physiotherapists, which include:

1. “5.2 Be able to recognise the need to identify and take account of the physical, psychological, social and cultural needs of individuals and communities” (p. 8)
2. “13.9 Understand the following aspects of behavioural science:
  - Psychological, social and cultural factors that influence an individual in health and illness, including their responses to the management of their health status and related physiotherapy interventions
  - How psychology, sociology and cultural diversity inform an understanding of health, illness and health care in the context of physiotherapy and the incorporation of this knowledge into physiotherapy practice” (p. 13).

For those registering with The Society of Sport Therapists (SST: The Society of Sports Therapists, 2012) the regulations state that they must:

1. “Be able to recognise the need to identify and take account of the physical, psychological, social and cultural needs of individual, and specific sporting population during the assessment process” (p. 5).
2. “Understand the requirement to adapt practice to meet the needs of different groups distinguished by, for example, physical, psychological, environmental, cultural or socio-economic factors” (p. 6).
3. “Understand the following aspects of behavioural science: (1) psychological, social and cultural factors that can influence an athlete’s injury, health and illness,

including their responses to the management of their injury and related treatment and rehabilitation” (p. 9).

While this PhD programme is situated in the UK, similar requirements can also be seen in other countries. For example, in the United States of America (USA) athletic trainers accredited by the National Athletic Trainers Association (NATA) “...must be able to recognize clients/patients exhibiting abnormal social, emotional, and mental behaviors. Coupled with recognition is the ability to intervene and refer these individuals as necessary.” (National Athletic Trainers Association, 2011, p. 27). Interestingly, NATA appears to be the only professional body (to date) representing SIRPs that includes dedicated sport psychology professionals on its professional educational council.

Whilst understanding the psychosocial aspects of sport injury is a requirement for many professional bodies (e.g., CSP, HCPC, NATA, SST), it is worth highlighting that in order to gain this knowledge universities within the UK are not required to provide bespoke modules in psychology. As Heaney et al. (2012) highlighted in their review of the psychological content of UK physiotherapy education, only four universities, out of the seventeen universities sampled, offered a named module in psychology for SIRPs. Although all 17 universities expressed that their programs included an element of psychology, this was predominately delivered through an integrated approach (e.g., linked alongside the specific physiotherapy content). When further questioned about the practitioner responsible for delivering the psychological content, 11 institutions reported using a non-psychology specialist, one used a psychology specialist and five used a mix of both. Heaney et al. (2012) offer clarity around these decisions, reporting that the influencing factor for this decision was the need for ‘contextual relevance’ as universities felt that it would lead to a more applied understanding of the topic. However, reducing learning to purely contextually relevant topics runs the risk of devaluing the importance of psychology in physiotherapy practice (Heaney et al., 2012) and further promoting the notion that the psychosocial rehabilitation may be overlooked in favour of physical treatment (Grevis et al., 2019). Furthermore, it appears counterintuitive that training on the psychology of sport injury is delivered by non-psychology specialists (i.e., SIRPs or specialists with no specific training in psychology). Although non-psychology specialists are able to draw specifically on clinical experience, psychologists offer an extensive understanding of the subject knowledge and applied context, which can be transferred to a clinical environment

To add further weight to Heaney et al.'s (2012) concerns regarding teaching provisions of psychology for SIRPs, numerous authors have also reported that SIRPs themselves do not feel adequately prepared to help athletes who appear to be struggling after injury (Alexanders et al., 2015; Clement et al., 2013; Driver et al., 2019; Jevon & Johnston, 2003; McKenna et al., 2002; Moulton et al., 1997; Stiller-Ostrowski & Ostrowski, 2009; Washington et al., 2004). For example, Jevon and Johnston (2003) described that SIRPs who had undertaken formal training in psychology, described it as ‘...basic and minimal...’ (Jevon & Johnston, 2003, p. 77). The lack of depth offered in formal training may also impact on a SIRPs confidence in their own abilities to appropriately apply their knowledge. As McKenna et al. (2002) reported, physiotherapists highlighted the gap between “knowing” what to do and “doing it”. Further, Washington-Lofgren et al. (2004) reported that 33.3% of the SIRPs they surveyed, knew what they should be doing to support an injured athlete but either did not know how or did not feel they had the confidence to do anything. Similarly, Driver, Kean, Oprescu, and Lovell (2016), Driver et al. (2019), and Stiller-Ostrowski and Ostrowski (2009) all showed that SIRPs expressed a lack of confidence in the ability to apply their knowledge. Specifically, this lack of confidence centered on knowing which strategies to use, how to communicate with other support member (e.g., parents and staff), and when and how to refer an athlete.

The findings above indicate (a) that while formal training requirements may be put forward by professional organisations, there is diversity across universities who deliver this training and the content that is covered; and (b) that SIRPs often do not feel adequately prepared by this training to provide support to athletes who experience psychosocial difficulties during injury. The above two points, taken together with the wealth of available literature on the psychosocial aspects of injury, highlights a knowledge-to-action gap surrounding the psychosocial development of SIRPs. The wealth of available literature should service the training requirements of SIRPs well, yet SIRPs suggest that this is not the case. Thus, it is important to consider how this knowledge could be better translated to SIRPs.

### **2.3 SIRPs Existing Uses and Training in the Psychosocial Aspects of Injury**

Considering the inconsistency of the current provisions of sport psychology training across academic institutions and the relatively broad training requirements provided by the professional bodies, it is not surprising that SIRPs report that formal training is basic. Yet research highlights that SIRPs do report the use of a range of psychological strategies in their work with athletes who have sustained an injury. These include keeping the athlete involved (e.g., Larson et al., 1996), goal setting (e.g., Hemmings & Povey, 2002), positive self-talk (e.g., Heaney, 2006), facilitating an engaging rehabilitation (e.g., Niven, 2007), effective communication skills (e.g., Lafferty et al., 2008), cognitive reconstructing (e.g., Washington-Lofgren et al., 2004), improving social support (e.g., Clement et al., 2013), relaxation techniques (e.g., Hemmings & Povey, 2002), visualisation (e.g., Kamphoff Hamson-Utley, Antoine, Thomae, & Hoenig, 2010), teaching emotional control (e.g., Lafferty et al., 2008), enhancing self-confidence (e.g., Heaney, 2006), reducing depression/stress/anxiety (e.g., Hemmings & Povey, 2002; Heaney, 2006), instilling responsibility (e.g., Niven, 2007) and pain management techniques (e.g., Kamphoff et al., 2010).

Given that SIRPs have been shown to report the limitations of their formal training but report using an extensive range of psychological strategies, we might begin to question where this knowledge and practice of psychological skills has evolved from. The literature offers three possible explanations for how SIRPs may have gained their knowledge. First, through vicarious learning, whereby practitioners learn by watching, listening and reflecting on the experiences of others (McKenna & French, 2011). In 2010 Roberts provided a literature review of the vicarious learning literature, highlighting that students used the experiences of others to learn, particularly during discourse, discussions and storytelling. The consequences of these interactions are that students internalise what is said and are able to relate these ideas as their own (Roberts, 2010).

Second, building on the concept of vicarious learning is the tacit knowledge gained during clinical and personal experiences. The process of forming tacit knowledge, involves engaging with trusted sources of knowledge (e.g., lecturers, staff, role models, patients) and the constant exposure to complex activities and events (e.g., the sharing of stories, reading, interactions with patients and colleagues; Gabbay & LeMay, 2011; Schaillee, Spaaij, Jeanes, & Theeboom, 2019; Tsoukas & Vladimirou, 2001). Fundamentally, tacit knowledge is not easily transferrable as it is makes up what might



be seen as the ‘fuzzy’, informal, and contextually-dependent knowledge practitioners acquire throughout their career (Greenhalgh, Robert, MacFarlane, Bate, Kyriakidou, & Peacock, 2005). Ethnographic work undertaken by Gabbay and Le May (2011) offers support for the importance of facilitating tacit knowledge in SIRPs, when they found that clinicians rarely accessed, appraised and used explicit evidence. Instead relying on, what they called “mindlines”, which they defined as a series of “...collectively, reinforced, internalised tacit guidelines” collected over a lifetime of learning, reading and experience (Greenhalgh & Wieringa, 2011).

Finally, SIRPs may also have gained their knowledge through engaging in informal educational activities. Specifically, Armstong and Weidner (2010) and Heaney, Rostron, Walker, and Green (2017) offer support for this suggestion. Further, Armstrong and Weidner (2010) demonstrated that SIRPs participated in informal educational activities (e.g., journal clubs, networking opportunities) more often than formal activities. Further, more recently Heaney et al. (2017) highlighted that 93% of their participants had engaged with informal sport psychology educational activities (e.g., reading, workshop attendance, conference and speaking to a sport psychologist). Although SIRPs have clearly demonstrated some success in bridging the knowledge to practice gap for themselves, resources such as funding and time may be required in order to gain this knowledge.

In their systematic review of attitudes and behaviours in relation to the role of sport psychology in sport injury rehabilitation, Heaney et al. (2015) highlighted 23 topics that SIRPs felt should be addressed by educational programmes. Table one outlines Heaney et al.’s results, demonstrating the importance of practical skills (e.g., interpersonal communication) as well as traditional psychological skills training (e.g., self-talk, imagery, goal setting). Although these results provide some insightful information, they should be interpreted with caution. Even though 23 topics of interest are offered, it is possible that there may also be a number of topics missing. For example, few articles directly asked participants what they wanted to see included. Further 16 of these studies offered recommendations for education proposed by researchers based on the results from the completed research. An additional seven articles used a questionnaire that proposed a list of predetermined skills/techniques, that SIRPs were required to rate in terms of how important each skill was for them to learn. These two deductive methods may therefore have guided responses towards skills or topics seen as important by researches, rather than directly asking SIRPs what skills or topics were important to their practice.

**Table 1.***Topic Areas Suggested to be Important in the Education and Training of SIRPs*

Topic	Number of studies recommended
Interpersonal communication	18
Positive self-talk/cognitive restructuring	15
Imagery	14
Goal setting	13
Listening skills/counselling skills	13
Relaxation techniques	12
Athlete referral to a sport psychologist or other practitioner	12
Providing/improving social support	11
Stress/anxiety/arousal	10
Motivation and adherence	10
Athlete self confidence	9
Concentration/attention	9
Depression	7
Recognising & evaluating psychological reactions to sport injury	7
Emotional control strategies	6
Professional boundaries	6
Creating variety in rehabilitation exercises	5
Emotional control strategies	6
Professional boundaries	6
Behaviour modification	2
Coping behaviours	1
Malingering	1
Pain management strategies	1

*Note:* Reprinted from “Sport psychology education for sport injury rehabilitation professionals: A systematic review” by C.A. Heaney, N.C. Walker, A.J.K. Green & C.L. Rostron, 2015, *Physical Therapy in Sport*, 16, p. 73.

While it is important to consider the psychological skills and topics desired by SIRPs it is also imperative to acknowledge SIRPs professional boundaries. A large portion of the skills (e.g., goal setting, self-talk, imagery, arousal control) reported within Heaney et al.’s (2015) review fall under the Health and Care Professions Council’s (HCPC) standards of proficiency for a sport and exercise psychologist (Health and Care Professions Council, 2015). Whilst SIRPs roles were previously defined by the physical aspects of movement and function, the move toward a biopsychosocial approach to treatment has seen SIRPs roles develop over time to include these psychosocial strategies (Driver et al., 2016). Yet, it is unrealistic to expect SIRPs to be experts in treating all

psychosocial concerns (Francis, Andersen, & Maley, 2000).

Comparing the HCPC standards of proficiency for a sport and exercise psychologist, against the professional standards for SIRPs (e.g., CSP, HCPC, NATA, SST), highlights clear professional boundaries around the psychological competencies that SIRPs are expected to adhere to. For SIRPs, the focus is placed on SIRPs “understanding”, “recognising” and “referring” when appropriate (Health and Care Professions Council, 2013), rather than “applying”, “formulating” and “assessing”, as outlined in the standards for sport and exercise psychologists (Health and Care Professions Council, 2015). Thus, SIRPs should exercise caution in the psychosocial support offered to injured athletes as the potential for blurred roles and permeable boundaries presents some dangers. As Brown, Crawford, and Darongkama (2000) highlighted, the blurring of boundaries and roles presents its own problems, including inefficiency, confusion and strain on individual roles. Any training moving forward needs to firmly focus on helping SIRPs to understand and identify the psychosocial aspects of sport injury, whilst ensuring that they understand when to refer and what tools they have available to them within their professional remit.

To summarise, although SIRPs received limited psychological training, they are knowledgeable about (and indeed use) a range of psychological skills in their practice. Research has explored the training requirements of SIRPs, but this has taken a very deductive or researcher-led approach. As emphasised by Kamphoff et al. (2010) and Heaney et al. (2017), efforts should be placed on ensuring SIRPs develop into well rounded practitioners by ensuring that educational content is highly relevant and specific to the target audience. Moving forward, efforts should therefore be placed on empowering SIRPs by actively involving them in the content and design of professional training activities. Providing SIRPs with a sound theoretical and practically applicable understanding may help to improve their confidence around the topic of sport psychology and to appreciate their own competencies within the area (Arvinen-Barrow, et al., 2010).

#### **2.4 Providing Sport Psychology Training to SIRPs**

Over the last 15 years, a small number of researchers have begun to explore the development of sport psychology education for SIRPs using a variety of educational interventions (Clement & Shannon, 2009; Harris, Demb, & Pastore, 2005; Heaney et al., 2017; Stiller-Ostrowski, Gould, & Covassin, 2009). To date four studies have delivered

an educational intervention that has aimed to educate SIRPs in understanding the psychosocial aspects of injury.

The first of these studies, conducted by Harris et al. (2005), provided a 10-week course on the psychology of injury to 19 athletic trainer students. Using a combination of interviews and questionnaires, the authors were able to demonstrate a change in the students' perceptions and attitudes towards the psychological aspects associated with injury. More specifically through the use of pre-test and post-tests questionnaires, they were able to demonstrate that students gained more appreciation for how the timing of the injury, professional aspirations, coach reactions, teammates reactions and family reactions can all influence an athlete's psychological response, as well as the negative impact injury can have on the athlete's academic achievement. The use of follow-up interviews offered further support for the questionnaire findings, demonstrating that students appeared to become more empathetic practitioners as a result of the training.

Building on this study, Stiller-Ostrowski et al. (2009) delivered a 6-week applied sport psychology educational intervention to a population of 26 athletic trainer students in the USA. Using a longitudinal design, participants' usage and knowledge of psychological skills were scored pre-intervention, during intervention (at weeks four and seven), and post-intervention (at seven and 14 weeks post completion). Results showed that participants in the intervention group had an increased knowledge around the psychology of injury and increased skill usage. However, at 14 weeks post-intervention, skill usage and knowledge scores demonstrated a decrease, although this decrease still represented an increase on the baseline data.

Unlike the previous two studies that delivered multiple sport psychology training sessions, Clement and Shannon (2009) provided a 75-minute educational workshop to a population of 160 athletic trainer students (N=83 students in the experimental group). The effectiveness of the workshop was measured using the Sport Psychology Behaviours Instrument before the intervention and six-weeks post intervention. Results revealed a significant increase in the use of sport psychology behaviours at the six-week follow-up for those who received the intervention compared to the control group. Further, significant increases were seen in four of the five sport psychology behaviours assessed (speaking to athletes about sport psychology, seeking out additional information about sport psychology, talking to a sport psychology consultant and applying taught sport psychology techniques in rehabilitation with an injured athlete)

Finally, Heaney et al. (2017) provided a 12-hour online sport psychology education

module to 54 physiotherapists and 40 sport therapists based within the UK. Drawing on the recommendations offered from Heaney et al.'s (2015) review, the module contained three units: (a) the psychological impact of sports injury, (b) psychological skills and techniques for injured athlete, and (c) referral and professional boundaries. Results demonstrated that six months post interventions, SIRPs continued to report a positive attitude and increased use of sport psychology strategies post-intervention

While these studies contribute to a growing body literature that has used psychological skills training with SIRPs there are number of overall limitations associated with this research area. First, the literature predominantly relies on student populations (Clement & Shannon, 2009; Harris et al., 2005; Stiller-Ostrowski et al., 2009). This is an important consideration as student populations may be less able (because of opportunity and experience) to integrate and apply their insights. Second, when developing the educational interventions none of the studies included SIRPs in the design phase of the intervention. Thus, the content of the intervention was designed by researchers (e.g., Harris et al., 2005; Stiller-Ostrowski et al., 2009) or based on reviews that were deductive or researcher-led (Clement & Shannon, 2009; Heaney et al., 2017). Further, participants were not consulted about the type of intervention delivered (e.g., length of the course, methods of delivery, topics included). Such considerations may be important given that SIRPs may have limited time available for educational activities. Third, the studies published thus far have largely drawn on the use of quantitative methods, underpinned by positivism or post-positivis. This is an important consideration as to expand our knowledge and understanding in this area of research further, it is also important that future research consider embracing other more interpretive philosophical approaches and methodologies

Finally, the content of each educational course was designed either to comply with the professional guidelines (e.g., Clement & Shannon, 2009; Harris et al., 2005; Stiller-Ostrowski et al., 2009) or used insights collated from the research of what should be integrated (e.g., Heaney et al., 2017). While this approach may offer an initial starting point, it fails to capture the breadth of unique insights generated by athletes that were collected as part of the original research. Consequently, similar topics may be reproduced (e.g., goal setting) while evolving contemporary topics (e.g., culture, growth) may be excluded.

To conclude, whilst previous research has demonstrated that educational interventions have been successfully used to improve SIRPs knowledge of the

psychosocial aspects of sport injury. To move the field forward (a) focus should be placed on better understanding the educational needs of the SIRPs and (b) future educational content should be underpinned by rigorous synthesis of contemporary psychosocial injury literature.

## **2.5 Situating my Approach to Research**

In addition to contextualising the role and training of SIRPs it is also important to situate the approach to research used within this PhD thesis. While each empirical chapter provides information on the methods of data collection and analysis, here I present my justification for the qualitative underpinning of this thesis, my own philosophy, the overall ethical considerations, and how the reader may choose to judge the quality of this programme of research.

Qualitative research is notoriously difficult to define due to the wide range of methodologies available and because it spans a variety of philosophical positions. Broadly, it can be summarised as an umbrella term that describes a camp of communities interconnected by its own family of terms, concepts and assumptions (Denzin & Lincoln, 2011; Walsh & Koelsch, 2012). Although this description privileges no single methodology over another (Smith & Sparkes, 2017), it also highlights the challenge of presenting an all-encompassing definition of the field. While qualitative research will mean different things to different researchers (Smith & Caddick, 2012), Denzin and Lincoln (2011) offer a generic starting point:

Qualitative research is a situated activity that locates the observer in the world. Qualitative research consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including fieldnotes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of or interpret phenomena in terms of the meanings people bring to them. (p. 3)

At the heart of this definition lies an interest in the meaning and interpretation of phenomena. Qualitative researchers aim to interpret peoples experiences and attempt to

make sense of them and the world they live in (Smith & Caddick, 2012; Sparkes & Smith, 2014). This is typically achieved through the prioritisation of obtaining and analysing textual data, in the form of words, images, sounds, and other senses (Sparkes & Smith, 2014). Thus, there are two important aspects of qualitative research, the ability for participants to express their thoughts and beliefs and the interpretations of the researcher. Consequently, it is not just the participant's experience that is valued but also the researcher's perspective, through the adoption of a reflexive stance (Sparkes & Smith, 2014). It is these combined insights that qualitative researchers draw upon when examining people's lives in rich detail (Smith, 2017a).

The following programme of research adopts a qualitative approach throughout. This approach was selected not only based on my own epistemological and ontological beliefs but because of the value that such an approach offers this area of research. Specifically, there were four main reasons that underpinned this decision:

1. A qualitative approach provides an opportunity to explore the wealth of existing qualitative literature on the psychosocial aspects of injury. By drawing on a range of methodologies and methods that have been used to understand injury, complex and nuanced insights may be gained.
2. A qualitative research approach offers a range of methods for collecting data about a specific audience (e.g., survey, observations). Allowing for data collection methods to be adapted to fit with SIRPs' professional lives and with a range of research questions.
3. A qualitative approach provides the opportunity to explore alternative methods of translating research to a specific audience. With the breadth of qualitative methods available, it offers the opportunity for creativity, using alternative methods of research translation that extend beyond the traditional methods typically used (e.g., results sections in peer-reviewed journals).
4. A qualitative approach can provide a valuable method of evaluating change. In the case of this research, it provides the opportunity to understand how SIRPs engaged with the educational tool developed.

As these four reasons demonstrate, the strengths of a qualitative approach lie in the versatility of methods, the possibilities for creativity and what might be termed 'user friendly' research. The following section explores the philosophical assumptions that have informed my approach to qualitative research.

### **2.5.1 Philosophical assumption**

Whaley and Krane (2011, pg. 395) highlight that there is “...no one ‘right’ approach to understanding...[a]... phenomena...”. The pragmatic assumptions, or basic set of beliefs about the world a researcher holds not only informs the research question employed within a study but also guide the entire research process (Grix, 2010; Smith & Caddick 2012). These beliefs, are fundamentally grounded in questions about the nature of reality (ontology) and how reality is known to us (epistemology). Understanding the ontological and epistemological assumptions that underpin research should not be ignored, as researchers of differing pragmatic persuasions will respond to key questions in different ways (Sparkes & Smith, 2014). For example, a researcher subscribing to a positivist approach may respond to the ontological question of ‘What is the nature of reality?’, with the belief that a single, uniform and objective truth exists externally but independent to the participants. However, an interpretive researcher may believe that social reality is humanly constructed, fluid and multifaceted. With this in mind, it seems fitting at this stage to consider my own beliefs, thoughts and feelings and how they have underpinned this programme of research. As a researcher my beliefs align with an interpretive paradigm, which is informed by a relativist ontology (or internal view of reality) and epistemological constructionism.

A relativist ontology suggests that the meaning and interpretation we assign to an object or situation is humanly constructed and shaped by the world around us. This means that there is no one singular truth, instead reality is defined and shaped by factors such as the people we meet, the language we use and the cultures we experience. The realities we create are therefore fluid, multi-dimensional and ever-changing in nature. In relation to this PhD, this set of beliefs supports the idea that the process of injury is fluid and ever changing. At any given point, an athlete’s response or a practitioner’s actions are the product of the interactions, cultures, people and meanings derived from experiences around them.

A constructionist epistemology suggests that there can be no separation between what is being studied and the researcher (Smith & Caddick, 2012). Thus, “...the knower and the known are inter-dependent and fused together in such a way that the ‘findings’ are the creation of a process of interaction between the two” (Sparkes & Smith, 2014, p. 13). Consequently, the idea of theory-free knowledge does not exist. In relation to this programme of research, these beliefs have important implications for how the data is



interpreted. As the researcher is considered inseparable from the research, any data collected is treated as a joint construction of experiences between myself and the practitioners. Whilst this is not seen as a ‘bad thing’ it is essential to accept that insights are co-constructed through interactions over time (Smith & Caddick, 2012).

Considering my own philosophical beliefs, holds important implications for how the research was done, and how I approached this thesis. The ontological and epistemological assumptions not only have implications on the methods I have chosen but also the types of analysis used, how quality and rigour was judged and how the research findings were represented (McGannon, Smith, Kendellen, & Gonsalves, 2019; Sparkes & Smith, 2014).

### **2.5.2 Ethical considerations**

Conducting ethically sound research is not a static event, it is a continual process, that intertwines throughout the everyday practices of doing research (Guillemin & Gillam, 2004; Smith & Sparkes, 2014). Palmer (2017) suggested the notion of an ethical chain to help guide researchers thinking. Importantly, the ethical chain encourages researches to pay attention to their own practice, while also considering some of the ethical pinch points that may become more or less apparent during the research process. Consequently, Palmer’s ethical chain was used to structure my thoughts and highlight the ethical considerations of this research.

First, ethical approval, a form of procedural ethics (see Guillemin & Fillam, 2004; Palmer, 2017), was granted by the University of Chichester Research Ethics Committee for each stage of the research. As part of the ethical approval process, practices surrounding consent, confidentiality, anonymity and risk were outlined. Due to the sensitive nature of the research, both directly and vicariously, precautionary steps were put in place to help prevent and manage distress in participants. These included allowing participants to set boundaries around what they wished to share, offering participants a chance to withdraw at any point and offering information surrounding local counselling services.

The second consideration in Palmer’s (2017) ethical chain encourages thinking beyond the procedural forms of ethics to challenge researchers to consider their own values, beliefs and how they interact with ethics in practice. In an attempt to move beyond the idea that ethical issues are not over and done with once ethical approval has been

granted, Lahman, Geist, Rodriguez, Graglia, and DeRoche (2011) offered an interesting starting point. Through the Three R's of Ethics, (a) culturally responsive ethics, (b) relational ethics, and (c) reflexive ethics, they suggest a stance that advocates the idea that it is not always possible for researchers to fully understand the diverse and complex perspectives of our participants varied cultures (Sparkes & Smith, 2014). Therefore, researchers need to be flexible and open to studying ethical issues from our participants perspective (Palmer, 2017). Lahman et al., (2011) called for researchers to integrate the three R's of ethics. Culturally responsive ethics focuses on the need for researchers to be aware and sensitive to participant cultures, particularly around interactions and power imbalances. Relational ethics encourages the researcher to balance their research between caring for the dignity, mutual respect and connectedness of their participants. The final R, focuses on reflexive ethics and encourages researchers to be sensitive to self, others and situations. Furthermore, there is a need for researchers to notice the reactions to the research situation and act accordingly to ensure that the safety, privacy, dignity and autonomy of participants is respected (Sparkes & Smith, 2014).

The third consideration in the ethical chain, is ethics in practice. Beyond the athlete interviews (chapter five) a large portion of this research took place through online platforms (e.g., email, learning management systems, e-surveys, and social media), which brings with it additional ethical considerations. This is particularly the case surrounding online data protection and data security. To address these concerns the following practices were put in place: (a) an encrypted email account was used to oversee the administration of all participant details, (b) any confidential data was encrypted and only accessible to the author, and (c) valid consent was obtained for participants.

The final consideration of the ethical chain focuses on how researcher write about our fieldwork and present the accounts to a wider audience (Palmer, 2017). Careful attention was placed when analysing the collected data and no identifiable details were revealed about participants. Instead, techniques such as the use of composite characters were used to maintain anonymity.

### **2.5.3 Judging quality in qualitative research**

The importance of best practice when conducting qualitative research has always been a topic of discussion (e.g., Burke, 2017; Smith, 2017a; Smith & McGannon, 2017; Sparkes, 1998; Sparkes & Smith, 2009; Sparkes & Smith, 2014; Tracy, 2010), but recently such

discussions have been at the forefront of the qualitative debate. Throughout this debate two ontological positions regarding the quality of research have received most consideration; the (realist) criteriological approach and the relativist approach.

The criteriological approach was initially one of the most popularised approaches to judging quality within sport and exercise psychology. Founded on the work of Lincoln and Guba (1985), Guba and Lincoln's updated perspective (1989), and more recently Tracy (2010), this approach advocates a parallel set of criteria to the positivist, post-positivist and neo-realist views of what constitutes rigour in qualitative research (Burke, 2017). This perspective suggests that methods used to judge quality in qualitative research should be external, pre-established, static, permanent and universal (Burke, 2017; Smith, McGannon, & Williams, 2015). However, the notion of judging research quality via a universal list of criteria is problematic for a number of reasons. The adoption of a one-size-fits all mentality has the potential to constrain the creation of knowledge and impactful research by suggesting that all forms of qualitative research should be judged in a preordained and set way, regardless of the intent or purpose (Smith & McGannon, 2017). Not only does this produce a closed system of judgement but it also narrows the band of what constitutes legitimate research (Sparkes & Smith, 2009), and therefore runs the risk of the field becoming stagnant, insipid and reduced to a technical exercise (Burke, 2017).

Given such limitations, an alternative position has been termed the relativist approach. Similar to the criteriological approach, criteria may be used to demonstrate that research is rigorous, but this is done in a manner that is contextually specific and flexible (Burke, 2017). Universal criteria are not proposed, but instead the judging of quality research is seen as a craft skill whereby informed decisions and ongoing judgements reflect the study and develop over time (Burke, 2017). Importantly, this form of relativism does not mean 'anything goes'. In fact, quite the opposite, quality is best judged and understood as list of characteristics (Sparkes & Smith, 2014), however, it is important to highlight that while the researcher may establish a list of characteristics these are always open-ended and subject to reinterpretation as the research progresses.

Considering these debates, a relativist approach to judging quality has been adopted throughout this programme of research. The reader is invited to not only judge this PhD as a whole but to consider characteristics that are specific to each empirical chapter. Consequently, each empirical chapter considers what constitutes quality in accordance with the methodology used, the audience and overall purpose of the study. For example,

the meta-study presented in chapter four uses trustworthiness, theoretical considerations and practical considerations as markers of quality. Later in this thesis, the development of an educational tool (chapter six) is judged using credibility, insightfulness and reflexivity as a measure of rigour.

In closing this chapter that contextualises the research problem, I invite the reader to consider the following indicators of quality that may be applicable to the thesis as whole:

- *Worthy topic*: is the topic relevant, timely, significant, interesting and/or evocative?
- *Rich rigour*: Does the research use sufficient, abundant, appropriate and complex theoretical constructs, data and time in the field, sample(s), context(s) and data collection and analysis processes?
- *Credibility*: Is the research marked by thick descriptions, concrete detail, explication of tacit knowledge and showing rather than telling?
- *Resonance*: Does the research influence, affect or move particularly readers through aesthetics and evocative representations?
- *Significant contribution*: Does the research provide a significant contribution conceptually/theoretically, practically, morally, methodological and heuristically?
- *Ethical*: Was the research conducted in an ethically strong and moral manner?
- *Meaningful coherence*: Does the research achieve what it sets out to do? Does it use methods and procedure that fit the stated goals? Does it meaningfully interconnect the literature, research question, finding and interpretations?

## **2.6 Summary**

In summary, this chapter has contextualised the role of SIRPs considering their own perceptions of this role and evaluating the training provided to allow them to fulfill this role. Furthermore, this chapter also justifies the qualitative approach taken across this programme of research, outlining my own philosophical views, the guiding ethical considerations and how the quality of the research may be judged.

Moving forward, the insights provided in this chapter highlight what might be termed a ‘knowledge-to-action’ gap. Whilst there is an abundance of research on the psychosocial aspects of sport injury, SIRPs are not confident in their knowledge, report training to be minimal, and while existing educational studies include some valuable

suggestions there are also a number of limitations in this research area. Given this landscape, careful consideration is needed about how researchers may effectively translate existing knowledge into practice. In line with this suggestion, the next chapter introduces the concept of knowledge translation and how it may be applied and used throughout this programme of research.



**Chapter Three:**  
**Knowledge Translation**

### **3.0 Overview**

This chapter provides an introduction to the concept of knowledge translation. To do this, I will first discuss the process of research translation, specifically considering the two distinct phases of research translation and knowledge. Second, I will move on to consider how knowledge translation has underpinned this thesis.

### **3.1 Understanding the Research Translation Landscape**

The effective translation of research insights into practice is vital in ensuring the best possible practice is put into place as soon as possible. Yet, attempting to understand and navigate the process of moving basic research ideas into practice is a semantical nightmare. Searching the academic literature will turn up at least 100 different phrases used to describe all or parts of the research translation process (e.g., knowledge diffusion, knowledge transfer, action research, knowledge exchange, know-do gap, evidence informed decision-making, translational research and continued professional development; McKibbin et al., 2010).

Given the range of terms available, Davidson (2011) offers the most succinct explanation of the research translation process. Drawing on the clinical application of research translation, Davidson offers clarity around three important terms: research translation, translational research and knowledge translation. The first term, research translation is defined as "...the process whereby knowledge is passed anywhere along the translational pathway from basic science at one end to improved community-based health outcomes at the other and, of course, vice versa" (Davidson, 2011, p. 910). This definition encompasses the entire process of research translation, starting with the harnessing of the basic sciences to produce new drugs, devices and treatments for patients, right through to application within the community and clinical practice.

The additional two terms, translational research and knowledge translation, relate to two different, but linked, phases of the research translation process. Translational research, is defined as the "...enterprise of harnessing knowledge from basic sciences to produce new drugs, devices, and treatment options for patients." (Woolf, 2008, p. 211), also known as 'Bench to Bedside', T1 research or translational medicine. Whereas, knowledge translation is defined as "The synthesis, exchange and application of knowledge by relevant stakeholders to accelerate the benefits of global and local innovation in strengthening health systems and improving people's health" (World Health

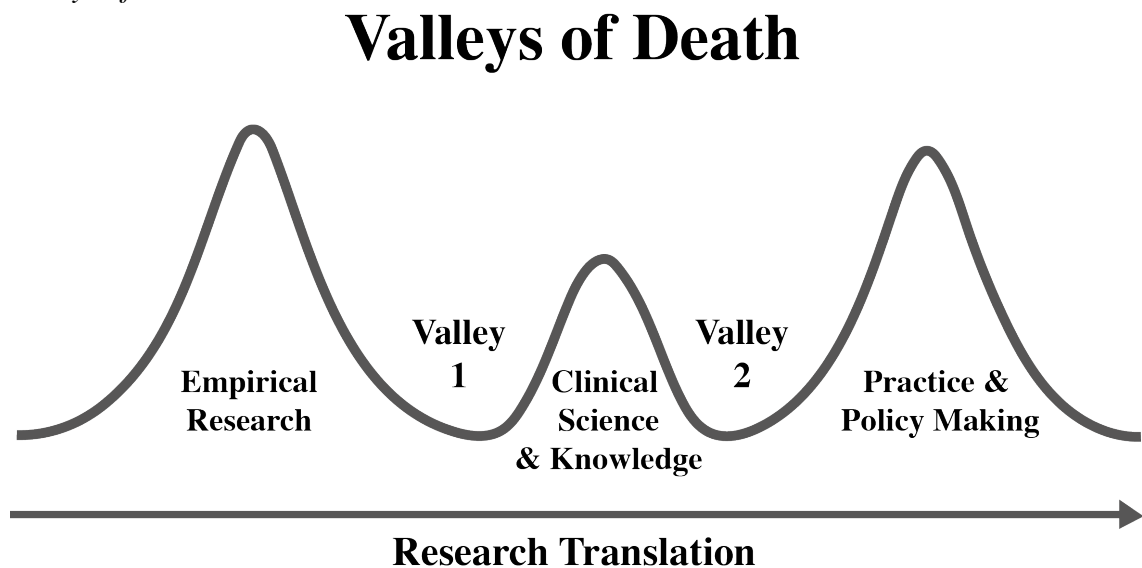


Organisation, 2005, p. 2). This is also known as ‘Campus to Clinic’, T2 research or implementation research.

Theoretically there should be a seamless translation between translational research and knowledge translation, and back again. For example, research may identify a new form of treatment that could improve recovery times (translational research), consequently to ensure appropriate application within practice, healthcare providers may need to alter practices and policies to ensure effective administration (knowledge translation). However, this seamless transition is often not the case. As figure one illustrates, researchers have identified two areas that create a bottleneck between the two phases of research. Somewhat dramatically termed the ‘Valleys of Death’, valley one sits within the area of translational research and illustrates the research gap that sits between the development of basic empirical research into ideas and products (e.g., new treatments or diagnostic tools; Cooksey, 2006; Reis, McDonald, & Byers, 2007). Valley two sits within the area of knowledge translation and illustrates the research translation gap between the uptake and the application of developed empirical research ideas/products into clinical practice and health policy (Cooksey, 2006; Reis et al., 2007).

**Figure 1.**

*Valleys of Death*



*Note:* Adapted from “Crossing the Research Valleys of Death: The University of Pittsburgh Approach” by S. E. Reis, M. C. McDonald, and S. J. Byers, 2007, *Clinical and Translational Science*, 1 (1), p.10.

Over the last 10 years, there has been unprecedented financial investment in research translation across the world. For example, over the last three years, the United States National Centre for Advancing Translational Science (NCATS; 2019) has invested over \$500 million dollars annually to over 50 recognised hubs via the Clinical and Translational Science Awards (CTSA). In 2017/18, the Canadian Institute for Health Research (CIHR; n.d) invested over \$1 billion dollars in various projects geared towards advancing knowledge in health. Finally, during 2017/18 the UK invested a staggering £1.8 billion gross research expenditure via the Medical Research Council (MRC; 2018) and National Institute of Health Research (NIHR; 2018). Taken together, these worldwide financial investments demonstrate the importance of research translation and the need for research to attempt to transverse the ‘Valleys of Death’.

Until recently, funding supporting translational research has overshadowed the funding available for research into knowledge translation (Woolf, 2008). Although the justification for the funding imbalance in favour of translational research (T1) is unclear, intuition would suggest that translational research, over knowledge translation, offers funders a clearer financial reward as well as a clearer end-product (e.g., drug development). Although the UK has seen an unprecedented level of investment in the research translation process, a key finding of the Cooksey report (2006) was the need to establish a dedicated knowledge translation (T2) research agenda (Eccles et al., 2009). However, the existing literature has highlighted that knowledge translation can be an unpredictable, slow and haphazard process (Balas & Bohen, 2000; Cooksey, 2006; Morris, Wooding, & Grant, 2011). For example, Balas and Bohen (2000) demonstrated that it took an average of 17 years for research evidence to reach clinical practice. This hurdle between theory and practice has also been recognised, at a consensus meeting held by The World Health Organisation (WHO, 2005) as being “... one of the most important challenges for public health in this century” (p. 1). Three years later, Eccles et al. (2009) offered further support for addressing this challenge, stating that “The relative inattention to implementing what we know is costing lives. There is an imbalance between investment in the development of new drugs and technologies versus improving the fidelity with which care is delivered.” As Woolf (2008) suggested, reconciling the investment disparity in knowledge translation research, is vital if we are to salvage the investments made in translational research. Consequently, a stronger commitment to knowledge translation research within clinical and practical settings is needed to ensure that individuals receive the most up to date and relevant care possible.

In summary, the terms research translation, translational research and knowledge translation are all frequently used interchangeably yet refer to different aspects in the process of translating research (Kerner, 2006). The unpredictable, slow, and haphazard nature of getting research findings into practical settings highlights a call for more research into effective knowledge translation. Consequently, the next consideration is to understand factors that may constrain or enable effective knowledge translation practices.

### **3.2 Barriers and Bridges to Addressing the Knowledge Translation Valley**

While there is widespread evidence that the knowledge translation gap needs to be addressed, research also highlights that practitioners may not be able to access quality evidence due to a number of barriers. In 1998, the British Medical Journal published a series of eight articles analysing the gap between research and practice. In this series, Haines and Donald (1998) discussed how best to promote the uptake of research findings, focusing specifically on the potential barriers to change. They suggested that barriers may include environmental (e.g., limitations of time, financial implications, lack of populations, lack of access) and personal factors (e.g., level of knowledge, influence of opinion leaders, current beliefs and attitudes). These suggestions were further expanded on by Haines, Kuruvilla, and Borchert (2004), who considered the barriers to knowledge translation in relation to the healthcare system (e.g., lack of financial resources and lack of access to care), practice environment (e.g., limitations of time and poor practice organisation), educational environment (e.g., failure of curricular to reflect research evidence and inappropriate continuing educational opportunities), social environment (e.g., influence of social fads/trends and inappropriate demands/beliefs created by media), political environment (e.g., political corruption and short-term thinking), practitioner (e.g., obsolete know and beliefs/attitudes) and patient (e.g., demands for ineffective care and perceptions about appropriate care). Finally, in 2005, the WHO provided further development at a consensus meeting of international representatives on knowledge translation (World Health Organisation, 2005). This meeting identified a number of enabling and constraining factors (see table two).

**Table 2.***Factors Constraining and Enabling Knowledge Translation*

Enabling Factors	Constraining Factors
<i>Push factors (supply side)</i>	
<ul style="list-style-type: none"> <li>• Production of relevant and good evidence</li> <li>• Timely and understandable repackaging &amp; synthesis of the evidence; evidence-based actionable messages (EBAMs)</li> <li>• Credible knowledge mediators/brokers/messengers, opinion leaders</li> <li>• Availability of and access to knowledge</li> <li>• Knowledge mapping</li> <li>• Donor/funding agencies support for KT</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of a common framework for knowledge translation</li> <li>• Limited integration of quantitative &amp; qualitative methods for synthesis of evidence</li> <li>• Costly and slow process of knowledge production &amp; synthesis</li> <li>• Lack of and poor access to relevant evidence</li> <li>• Competing sources of knowledge that may be distorted and biased</li> <li>• Donor-driven research agenda</li> </ul>
<i>Pull factors (demand side)</i>	
<ul style="list-style-type: none"> <li>• Political commitment and local knowledge champions</li> <li>• Political mapping and understanding of the socio-political environment</li> <li>• Problem-based evidence and user-initiated policy questions</li> <li>• Integration of social actors in local decision-making bodies (social participation)</li> <li>• User-friendly access to knowledge and searchable databases</li> </ul>	<ul style="list-style-type: none"> <li>• Low demand for scientific evidence by policy makers</li> <li>• Different paradigms for evidence and policy among decision-makers, practitioners and researchers</li> <li>• Political and/or financial reasons for not acting on good evidence</li> </ul>
<i>Exchange Factors</i>	
<ul style="list-style-type: none"> <li>• Education of and dialogues with users and media on high-impact stories on the use of knowledge</li> <li>• Innovative ways of knowledge sharing, esp. tacit knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• Low demand for scientific evidence by policy makers</li> <li>• Different paradigms for evidence and policy among decision-makers, practitioners and researchers</li> <li>• Political and/or financial reasons for not acting on good evidence</li> </ul>

*Note.* Reprinted from “Bridging the ‘Know-Do’ Gap: Meeting on Knowledge Translation in Global Health” by World Health Organisation, 2005, p.6

The factors constraining and enabling knowledge translation are described as being dependent on a number of push (supply), pull (demand) and exchange factors. Push efforts are led by the purveyors of research (e.g., researchers), while pull efforts are typically led by individuals looking to extract specific information (e.g., healthcare professionals) and exchange efforts occur between the purveyors of research and users of the research (Lavis, Lomas, Hamid, & Sewankambo, 2006). Using this approach, successful knowledge translation will be facilitated by push and exchange factors such as the availability of relevant and good evidence, evidence being understandable as well as containing actionable messages, evidence being appropriately mapped to key social-political agendas, evidence that took into consideration user-initiated policy questions, opening dialogue with users and media on use of knowledge, and innovative ways of sharing knowledge (especially tacit knowledge). Whereas unsuccessful knowledge translation will be constrained by pull and exchange factors such as evidence being too complex, cost implications for producing, packaging and distributing evidence, a lack of access to relevant evidence, a low demand for scientific evidence, financial constraints that prohibit evidence being acted on, a lack of interactive communication between involved parties, and lack of knowledge sharing.

More recently, Bekker, Paliadelis, and Finch (2018) evolved discussions on knowledge translation to highlight one barrier to effective knowledge translation occurs, when knowledge translation is over-simplified as the need for different, more or better forms of knowledge dissemination. Bekker et al. (2018) highlight how knowledge translation has mistakenly been over simplified to the idea that if knowledge is formatted differently and distributed better, then knowledge translation is achieved. Although accessible dissemination is important, knowledge translation is a much more complex undertaking than is generally acknowledged (Bekker et al., 2018). Consequently, careful attention must be given to knowledge translation as a fully formed concept to ensure effective implementation.

Overall, the research literature highlights three considerations that may help to improve the effectiveness of knowledge translation. First, knowledge translation should be built on an understanding of the potential barriers and bridges to behavioural change, at both an individual and organisational level (Eccles et al., 2009). Second, knowledge translation research needs to draw on the use of conceptual models and frameworks (Eccles et al., 2009; Eccles, Grimshaw, Walker, Johnston, & Pitts, 2005; Estabrooks, Thompson, Lovely, & Hofmeyer, 2006). Not only would the use of a specific knowledge

translation framework serve to offer a global picture of how knowledge translation may be integrated within the research process, they also provide a common script or understanding of the process involved (Graham, Tetro, & KT Theories Research Group, 2007; Sudsawad, 2007). However, it is worth highlighting that to date there is no one framework that universally fits all knowledge translation purposes (Eccles et al., 2009). Different models and frameworks have been developed with different purposes in mind. Therefore, the appeal of one framework over another will largely depend on the research purpose, discipline and philosophical position (Eccles et al., 2009). Finally, it may benefit future research to revisit our assumptions of how knowledge is conceptualised and integrated by practitioners (Greenhalgh & Wieringa, 2011; Gabby & Le May, 2011; Bekker et al., 2018).

### **3.3 Selecting a Conceptual Framework**

With the vast number of different terms available to describe the knowledge translation process it is not surprising that a number of conceptual models and frameworks have also been developed to help implement change and improve research translation. Drawing on conceptual frameworks helps to clarify describe, organise and evaluate research insights (Graham et al., 2007; Nilsen, 2015). Using a conceptual framework provides a frame of reference for the researcher that in turn helps to organise their thinking (Field, Booth, Ilott, & Gerrish, 2014). Although there is no one ideal, universally accepted framework developed for all knowledge translation purposes (Eccles et al., 2009), there are an extensive array of conceptual frameworks available, each reflecting different purposes (e.g., to guide practice, guide research or guide theory), audiences (e.g., practitioners, policy makers, patients), and disciplines (e.g., social work, nursing, family planning; Graham et al., 2007). Examples include The Iowa Model of Evidence Based Practice (Titler et al., 2001), Stetler Model of Research Utilisation (Stetler, 2001), Joanna Briggs Institute Model of Evidence-Based Healthcare (Pearson, Wiechula, Court, & Lockwood, 2005), RE-AIM Framework (Glasgow, Vogt, & Boles, 1999), Promoting Action on Research Implementation in Health Services (Kitson, Harvey, & McCormack, 1998; Rycroft-Malone et al., 2002), Ottawa Model of Research Use (Logan & Graham, 1998), and The Knowledge to Action Framework (Graham, et al., 2006; Graham et al., 2007).

With this extensive menu of conceptual frameworks on offer, the challenge moves towards choosing a conceptual framework that is applicable to the research environment and fit for purpose (ICEBeRG, 2006; Eccles et al., 2009; Rycroft-Malone & Bucknall,

2010). To guide the choice of conceptual frameworks, the following criteria were used to select a framework that would be suitable for the programme of research. This included the need to:

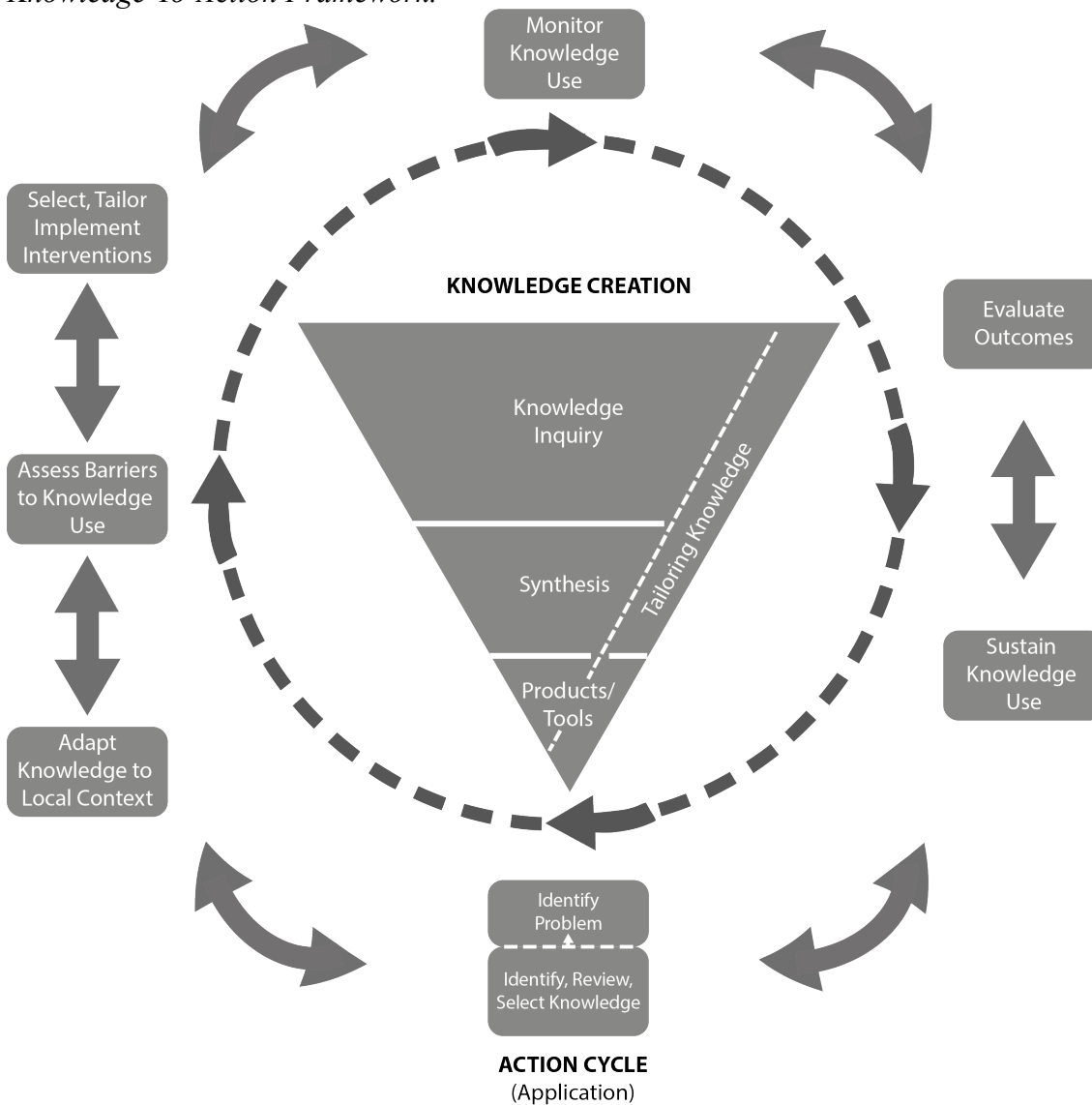
1. Focus on the translating research insights into clinical or practical setting
2. Include healthcare practitioners in the process
3. Be useable with different user groups - individuals, groups and organisations
4. Break down the knowledge translation process and include an evaluative component to the process
5. Work from knowledge creation to knowledge dissemination
6. Offer flexibility around the methods used to facilitate learning

One model that addressed all of these criteria is the Knowledge-to-Action (KTA) Framework, created by Graham et al. (2006). The KTA framework, has been used to varying completeness (e.g., selected parts of sections of the framework) in 146 articles within the disciplines of health and medicine (Field et al., 2014) and has been recently applied across a number of sport-related studies. This included sport concussion (Provvidenza, Engebretsen, Tator, Kissick, McCrory, Sills & Johnston, 2013), youth sport (Holt et al., 2018a), and injury (Smith, Tomasone, Latimer-Cheung, & Martin Ginis, 2015).

The KTA framework focuses on turning knowledge into action (Graham et al., 2006) and was designed to be used by a broad range of audiences (Graham & Tetroe, 2010). It contextually considers the social interaction, local environment and culture, as well as key mechanisms for promoting changes from knowledge to action (Graham & Tetroe, 2010). Further, the KTA framework offers flexibility as each of the phases are not prescribed. Figure two provides an outline of Graham et al.'s (2006) KTA framework.

**Figure 2.**

*Knowledge-To-Action Framework.*



*Note:* Reprinted from “Lost in Knowledge Translation: Time for a Map?” by I. D. Graham et al., 2006, *Journal of Continuing Education in the Health Professions*, 26(1), p.19.

The framework is divided into two concepts: knowledge creation and action cycle. The central funnel symbolises knowledge creation, whereas outside the cycle represents the processes related to the action cycle (Graham et al., 2006). Although these two concepts are depicted as two separate parts within the KTA framework, both parts are dynamic in nature and can take place sequentially or simultaneously, depending on the focus of the researcher (Graham et al., 2006).



### 3.3.1 Knowledge creation

The central funnel of the figure, depicts the knowledge creation aspect of the framework. The funnel comprises of three phases: knowledge inquiry (first-generation knowledge, e.g., empirical research), knowledge synthesis (second-generation knowledge, e.g., systematic reviews, meta-synthesis) and creation of knowledge tools/products (third-generation knowledge, e.g., clinical guidelines and protocols; Graham & Tetroe, 2010). As knowledge moves through the funnel it becomes more distilled and refined as understanding around a subject area is developed (Graham et al., 2006). For example, the use of meta-synthesis may refine knowledge from a broad base of empirical publications, this knowledge may then be further refined by creating a tool or product to convey this knowledge into something that is useable in practice.

### 3.3.2 Action cycle

The outer action cycle, represents the process through which knowledge is implemented (Straus, 2013). The cycle describes the steps needed to develop and refine knowledge to make it useable (MacDermid & Graham, 2009; Kastner & Straus, 2012). Comprising of seven action phases, the action cycle frames what needs to be done, how and what circumstances/conditions need to be addressed (Graham & Tetroe, 2010). The first step in the action cycle often involves the *identification of a problem or issue* that needs attention. This is addressed by considering not only what gaps exist but also why they exist. Kitson and Straus (2009) suggest starting with a needs assessment of the population and environment. This can be undertaken by drawing on specific population data, research insights, any relevant datasets, local audit data and data collected from key stakeholders. Next in phase two, *adapting the knowledge to a local context*, the researcher must decide if the identified knowledge from phase one has value, is useful and appropriate. This is achieved by evaluating the existing research insights and guidelines, before they are customised to fit the local context. During the process of adapting existing research insights, the local context, priorities, legislations, policies and resources available to the targeted setting are considered and addressed (Harrison, Graham, Fervers, & Van Den Hoek, 2013). Following on from here, phase three, *assess potential barriers to change*, focuses on identifying the specific challenges that may impede or limit practitioner's uptake of knowledge. To date there is no consensus around the correct method, instrument or framework required for assessing potential barriers to change

(Legare et al., 2013). Instead researchers have used on a range of qualitative (e.g., one-to-one interviews, focus groups, workshop discussions, practitioner observations, surveys) and quantitative (e.g., meta-analysis, purpose build instruments) approaches for assessing the potential barriers to change. In phase four, the researcher must *select, tailor, and implement interventions*. During this phase, insights from the earlier phases are combined with practice-based experience and an element of creativity to develop an intervention targeting the ‘gap’ identified in phase one (Wensing, Bosch, & Grol, 2009). Once the intervention is implemented, attention is then placed on *monitoring knowledge use* (phase five) and *evaluating outcomes* of the intervention (phase six). During these two phases, focus is placed on whether the intervention was successful, but also considers to what extent it was useful and how the knowledge may be used by the targeted group. Consequently, like any research programme, the methods adopted to monitor and evaluate the intervention need to match the originally formatted research questions. Therefore, strategies for monitoring and evaluating the interventions should use a range of qualitative and quantitative methods, that are appropriate for the research design (Straus, Tetroe, Bhattacharyya, Zwarenstein, & Graham, 2013). Finally, phase seven focuses on *sustaining knowledge use*, which should set in motion a feedback loop that circles back through the action cycle (Graham et al., 2006).

### **3.4 This PhD Thesis and The Knowledge to Action Framework**

Working to overcome the potential constraints associated with effective knowledge translation is vital for ensuring that the best possible practice is translated down to where it is of most use. Therefore, it is perhaps not surprising that there has been a recent increase in research looking to address the knowledge translation gap within the health literature (e.g., Jull, Giles, & Graham, 2017; Lewin & Glenton, 2018; Smith, Papatomas, Martin Ginis, & Latimer-Cheung, 2013; Smith et al., 2015; Soundy, Smith, Cressy, & Webb, 2010; Sturgiss & Douglas, 2016) and within sport and exercise medicine (e.g., Bekker, Paliadelis, & Finch, 2017; Bekker et al., 2018; Holt et al., 2018a; Holt et al., 2018b; Keegan, Cotteril, Woolway, Appanal, & Hutter, 2017; Mrazik, Dennison, Brooks, Yeates, Babul, & Naidu, 2015; Schaillee et al., 2019 Szedlak, Smith, Callary, & Day, 2019). Yet despite this emerging research interest, knowledge translation has yet to be used within the psychosocial sport injury literature. Although new knowledge insights are routinely produced on the psychosocial aspects of sport injury, these insights often stop

at the knowledge creation funnel and no further progress is made (or intended). This programme of research aims to move research on the psychosocial aspects of sport injury beyond the knowledge creation funnel by improving knowledge translation to SIRPs using the KTA framework. Mapped to the processes of the KTA framework, the six key questions guiding this research programme are outlined in table three.

**Table 3.**

*Summary of PhD Research Questions*

<b>KTA Component</b>	<b>Research Questions</b>	<b>Chapter</b>	<b>Method</b>
<i>Knowledge creation funnel:</i> knowledge inquiry, synthesis & products/tools	What does the published qualitative literature contribute to our ability to describe and understand an athlete injury experience?	Five	Meta-Synthesis
Identify problems & select knowledge	What previous experience and knowledge do SIRPs have around the psychological aspects of injury?		
Adapt knowledge to local context	What barriers do SIRPs face in accessing research driven knowledge around the psychological aspects of sport injury?	Six	Survey
Assess barriers to knowledge use			
Select, tailor & implement intervention	How can the qualitative insights be adapted & applied to create an appropriate knowledge translation tool to assist SIRPs?	Seven	Creative non-fiction, video animations & reflective questioning
Monitor knowledge use	What effect did the developed educational tool have on SIRPs understanding of the psychological aspects of injury?	Eight	Online course: Psychology of Sport Injury
Evaluate outcomes			
Sustain knowledge use	What have I learned going forward?	Nine	-

### **3.5 Summary**

In summary, this chapter demonstrates the exciting potential contribution that may be made from using the KTA framework as a tool for addressing the knowledge translation gap identified within the psychology of sport injury literature. Alongside discussing the potential of addressing the knowledge-to-practice gaps identified, this chapter has outlined the factors associated with the successful and unsuccessful translation of research, as well offering a summary of the KTA framework. Thus, the next chapter will address the first research aim and address the first step in the KTA framework.

**Chapter Four:**  
**A Meta-Synthesis of the Psychosocial Responses to  
Injury**

#### 4.0 Introduction

Sustaining a sports injury is a complex and often challenging process, not only for the injured athlete but also for SIRPs who support the athlete throughout this process. Given the complexity of athletic injury there has been a plethora of literature that has explored the athlete's psychological and social experiences during injury. Although a number of attempts have been made to synthesise the psychosocial aspects of sport injury literature (e.g., Ardern, Taylor, Feller, & Webster, 2013; Brewer, 2010; Forsdyke, Smith, Jones, & Gledhill, 2016; Gledhill, Forsdyke, & Murray, 2018; Ivarsson, Tranaeus, Johnson, & Stenling, 2017; Podlog, Dimmock, & Miller, 2011; Podlog & Eklund, 2007), most often these have focused on one specific stage of the injury process (e.g., return to sport) or a specific injury (e.g., anterior cruciate ligament). Further, all but Podlog et al. (2011) and Podlog and Eklund (2007) utilised a review that did not consider or predominately looked to exclude qualitative data. Only one study (Forsdyke et al., 2016) incorporated both qualitative and quantitative literature. However, Forsdyke et al.'s synthesis raises concerns that by subjecting qualitative data to the procedures of a 'traditional' systematic review, it fails to represent the richness and meaning of data obtained from qualitative methodologies (Weed, 2006; Zimmer, 2006). One way to overcome this limitation is through a meta-synthesis of qualitative research. Not only would this deepen our understanding of how the literature has represented the athlete's experiences of injury, but it would also compliment the aforementioned reviews.

Similar to a quantitative research synthesis, a qualitative meta-synthesis looks to "to create a systematic logic within which findings from distinct studies in a field can be rigorously integrated into stronger and more generalisable knowledge claims." (Thorne, 2009; p. 571). The use of a qualitative meta-synthesis is recommended at this point in time for a number of reasons. First, the use of a meta-synthesis forms a crucial part of the knowledge transfer process, providing a synthesis of the research-based body of knowledge from which practitioners, policy makers and health care providers can draw from (Jensen & Allen, 1996; Kastner et al., 2012; Sandelowski, Doherty, & Eden, 1997). Second, the process has been suggested to help to 'put together' the fragmented parts of a research area (Noblit & Hare, 1988). Within the injury literature, many studies have been completed in isolation and/or have considered just one aspect of the injury process without giving consideration to how this informally impacts the entirety of the injury process. Third, meta-synthesis would help to enrich and deepen our understanding of the

injury process by drawing on the nuances, assumptions and milieu of athlete accounts, that are often taken for granted or excluded from quantitative reviews (Walsh & Downe, 2005). Finally, the process of meta-synthesis can help to open up and create opportunities for new insights and understandings to emerge (Walsh & Downe, 2005), as well as illustrating gaps in our knowledge. Such insights will allow the current thesis to generate information that is innovative and original.

Although the completion of a qualitative meta-synthesis can provide a number of positive outcomes, Thorne, Jensen, Kearney, Noblit, and Sandelowski (2004, p. 1346) cautioned us against the oversimplification and generalisation of the data. Suggesting that the "...goal is to achieve more, not less." This process is not about obtaining a single '*truth*' or '*answer*' but presents an opportunity to develop a fuller understanding of athlete's injury experiences. Consequently, the aim of this study was to synthesise the current literature and develop a more refined understanding of the injury experience, consolidate where we are now and identify where the field of research goes next.

#### **4.1 Methodology**

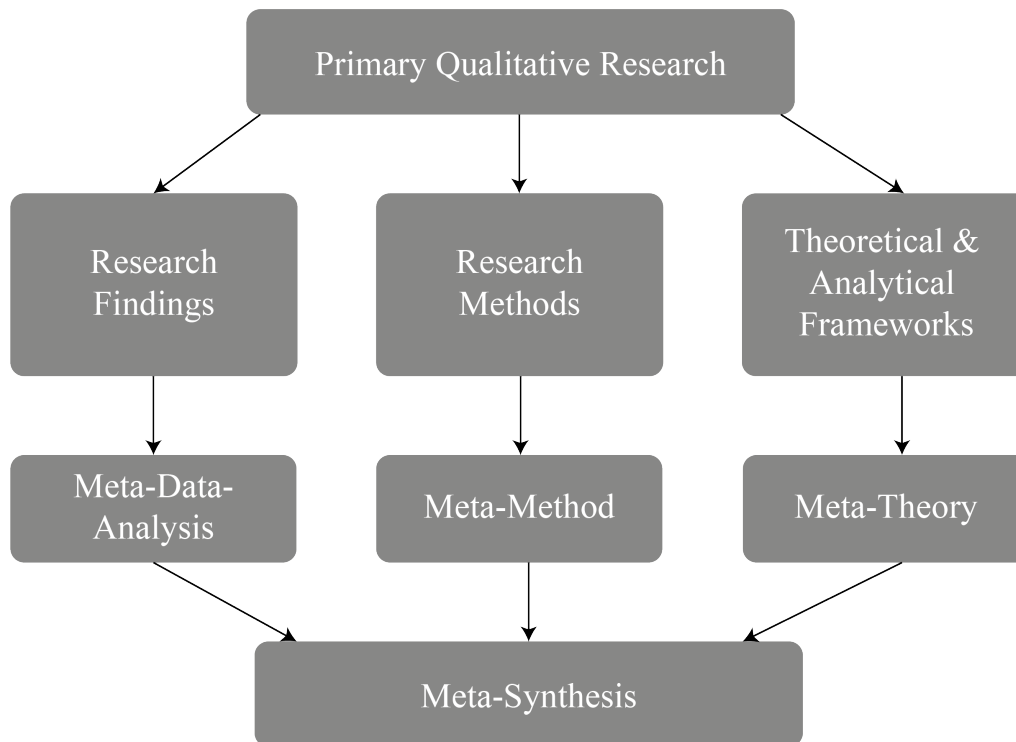
Although the use of a qualitative meta-synthesis is relatively new to the sport and exercise science literature (e.g., Anthony, Gucciardi, & Gordon, 2016; Tamminen & Holt, 2010; Weed, 2006; Williams, Smith, & Papatomas, 2014), the last six years has seen an emergence of published research using this approach within the health literature (e.g., Frost, Garside, Cooper, & Britten, 2016; Kampman, Hefferon, Wilson, & Beale, 2015; Soundy, Rosekell, Elder, Collet, & Dawes, 2016; Williams et al., 2014). As the collective term for a family of methodological approaches it is not surprising that over the years new approaches, methods and techniques have been proposed as the use of meta-synthesis has increased (Thorne, 2009). As the purpose of this research was to synthesise the existing literature and refine our understanding of the injury experience, the type of qualitative meta-synthesis used was a meta-study (Paterson, Thorne, Canam, & Jillings, 2001).

Strongly located within the tenets of the constructivist approach, meta-study refers to a multi-faceted approach that analyses the theory, methods and data of previous research (Paterson et al., 2001). Meta-study is "the research of research" (Paterson et al., 2001; p. 5) offering the researcher a unique opportunity to not only analyse existing research, but perhaps more importantly reflect on how and why researchers have

constructed and reconstructed knowledge around injury.

**Figure 3.**

Process of Meta-Study



*Note:* Adapted from “Introduction” by B. L. Paterson, S. E. Thorne, C. Canam, and C. Jillings, 2001, *Meta-study of qualitative health research: A practical guide to meta-analysis and meta-synthesis*, p.9.

As outlined in figure three the meta-study approach consists of six phases: formulating the research question(s), selection and appraisal of primary research, three analytical components - meta-data-analysis, meta-theory and the meta-method, and culminating in a final meta-synthesis. Although the phases are reported progressively, the three analytical components do not typically unfold sequentially but usually occur concurrently (Paterson et al., 2001).

#### **4.1.1 Formulating the research question(s)**

The first stage of a meta-study is to develop a focused set of research question(s). This tentative and evolving process is critical as it helps to shape the subsequent phases of the study (Sparkes & Smith, 2014). Remaining consistent to the aims of this thesis, the following question was established. What does the published qualitative literature



contribute to our understanding of an athlete's experience of injury from the moment an injury is sustained until the point of returning to sport? Therefore, the purpose of this meta-study was to (a) systematically search and appraise the qualitative literature on athlete experiences of injury, (b) synthesise knowledge from existing qualitative literature that contributes to describing and understanding an athlete's experience following an injury, and (c) guide the development of an educational tool for SIRPs in this thesis.

#### **4.1.2 Selection of primary research**

The selection and appraisal of primary research formed the second stage of the meta-study and included the development of literature search strategies, the clarification of inclusion and exclusion criteria and the appraisal of each paper for both appropriateness and quality.

##### ***Identification of existing qualitative synthesis***

Drawing on the existing qualitative synthesis literature, Booth (2011) recommended the completion of a preliminary synthesis be completed prior to the full review in order to identify whether any existing qualitative syntheses had already been completed within a similar area. Due to the logical nature of this step, published qualitative syntheses were identified by searching the following databases: Medline, PubMed, PsycINFO, SPORTDiscus, PsycARTICLES, Scopus and SocINDEX. To ensure as many published qualitative syntheses relating to injury and sport were identified a broad range of search terms were used:

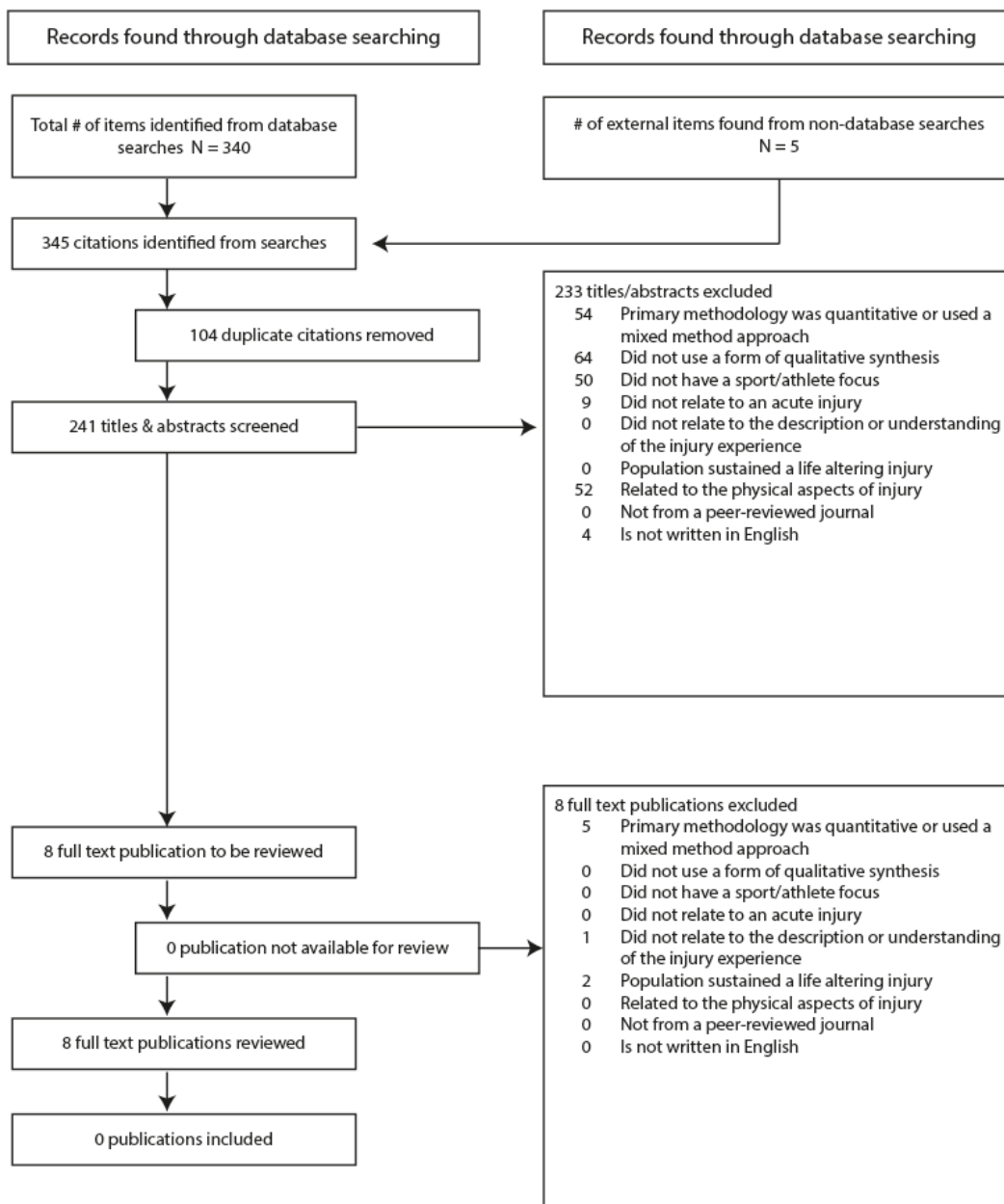
1. Terms for sport: athlete OR sport
2. Terms for injury: injur\*
3. Terms for methodology: "meta-synthesis" OR metasynthesis OR "meta synthesis" OR "meta-ethnography" OR "metaethnography" OR "meta ethnography" OR "meta-study" OR "metastudy" OR "meta study" OR "qualitative systematic review" OR "systematic review AND "qualitative" OR "evidence synthesis" or "realist synthesis" or "qualitative AND synthesis"

Following the initial database search 340 citations were returned, an additional five articles were then located via Google Scholar and from searching literature references. All citations were numbered and stored within RefWorks, with any duplicates being

removed (n=104). This left a total of 242 titles and abstracts to be screened. To ensure the transparency of this process, the decision-making process is outlined in the form of a flowchart (see figure four; Walsh & Downe, 2005).

**Figure 4.**

*Process Flowchart for Existing Qualitative Synthesis*



As part of the screening process the 241 abstracts were first appraised on the relevance of their title and abstract. They were then either included or excluded based on the following criteria:

- *Inclusion criteria:* (a) primary methodology was qualitative in nature, (b) utilised a form of qualitative synthesis, (c) it had a sport/athlete focus, (d) it related to an acute injury, (e) it focused on describing and understanding the injury experience, (f) the population sustained a non-life altering injury, (g) it related to the psychosocial aspect of injury, (h) it was from a peer-reviewed journal and (i) it was written in English.
- *Exclusion criteria:* (a) primary methodology was quantitative or mixed in nature, (b) was not a form of qualitative synthesis (c) it did not focus on sport/athlete's, (d) it did not relate to an acute injury, (e) it did not relate to the description or understanding the injury experience, (f) the participant sustained a life altering injury (e.g., became disabled through sport), (g) it related only to the physical aspect of injury, (h) it was not from a peer-reviewed journal, and (i) it was not written in English.

Throughout this process a further 233 citations were excluded, leaving 8 citations to be reviewed in full. Of the final eight papers none were identified as already addressing the proposed research question - what does the published qualitative literature contribute to our understanding of an athlete's experience of injury up to the point of returning to sport? - the need for this qualitative synthesis was confirmed.

### ***Literature search strategies***

Having identified a need for this qualitative synthesis a detailed and systematic process of appraising the injury and sport literature was conducted. Similar to the preliminary review, articles were first identified by searching the following databases: Medline, PubMed, PsycINFO, SPORTDiscus, PsycARTICLES, ScienceDirect, Web of Science, Scopus and SocINDEX. Drawing on lessons learned from the preliminary search a wide range of search terms pertaining to an athlete's injury experience were used:

1. Terms for sport: athlete OR athletic OR sport
2. Terms for injury: injur\*
3. Terms for methodology: ethnodrama OR 'qualitative research' OR 'qualitative methods' OR 'visual method\*' OR 'focus group\*' OR interview\* OR ethnograph\* OR 'participant observation\*' OR interpret\* OR 'life world\*' OR 'life history' OR 'life stories' OR 'lived experience\*' OR 'grounded theory' OR 'content analysis' OR 'discourse analysis' OR 'thematic analysis' OR 'constant comparative' OR

narrative OR 'conversation analysis' OR hermeneutic\* OR phenomenolog\* OR 'holistic-content' OR 'holistic-form' OR 'categorical-content' OR 'categorical-form'  
4. Date: TO 31/12/2015

After the initial database search a total of 5124 citations were returned, with a further 69 articles identified via 'berry picking' methods (Barroso, Gollop, Sandelowski, Meynell, Pearce, & Collins, 2003) that included: author searches, hand searching and researcher biographies. All citations were numbered and stored within RefWorks before any duplicates were removed (n=1961), leaving a total of 3232 citations to be screened.

Following the initial screening all citation titles and abstracts were screened based on the following inclusion and exclusion criteria:

- *Inclusion criteria:* (a) primary methodology was qualitative, (b) it primarily used an athlete population, (c) the primary focus was on acute injuries, (d) the injuries related to musculoskeletal injuries, (e) contained data that described an athlete's injury experience, (f) the data focused on the psychosocial aspects of sport injury, (g) population sustained a non-life altering injury, (h) it was written in English, (i) it used original athlete data, (j) all of the population was over 18 years old, and (k) it was a peer-reviewed article
- *Exclusion criteria:* (a) primary methodology was quantitative in nature or used a mixed method approach, (b) did not primarily use an athlete population, (c) the primary focus was related to a chronic injury, (d) it related to a non-musculoskeletal (MSK) injury, (e) it did not contain data that described an athlete's injury experience, (f) the primary focus did not relate to the psychosocial aspects of sport injury, (g) population sustained a life altering injury (e.g., spinal cord injury, traumatic brain injury), (h) it was not written in English, (i) it had not used original athlete data, (j) all or part of the population was under 18 years old and (k) it was not a peer-reviewed article

Several key decisions were made when defining the inclusion/exclusion criteria. First, the decision to include only qualitative data was to compliment existing reviews and draw together the extensive amount of published qualitative literature already available. Second, the use of an athlete population and to only include papers that used original athlete data was to focus on the athlete experience of injury and to limit repetition. Third, the exclusion of chronic, non-MSK, and life-altering injuries was because the literature

has shown that responses to these types of injuries are markedly different (e.g., Putukian & Echemendia, 2003; Shuer & Dietruch, 1997). Similarly, the use of a population over the age of 18 was for similar reasons. Fifth, the exclusion of data not describing or relating to the psychology of sport injury was to ensure relevant articles were excluded that did not relate to understanding an athlete psychosocial experience of injury. Finally, the inclusion of papers written in English and stipulation of peer-reviewed articles, was to ensure the papers could be read and to provide an initial indicator of the quality of the articles judged.

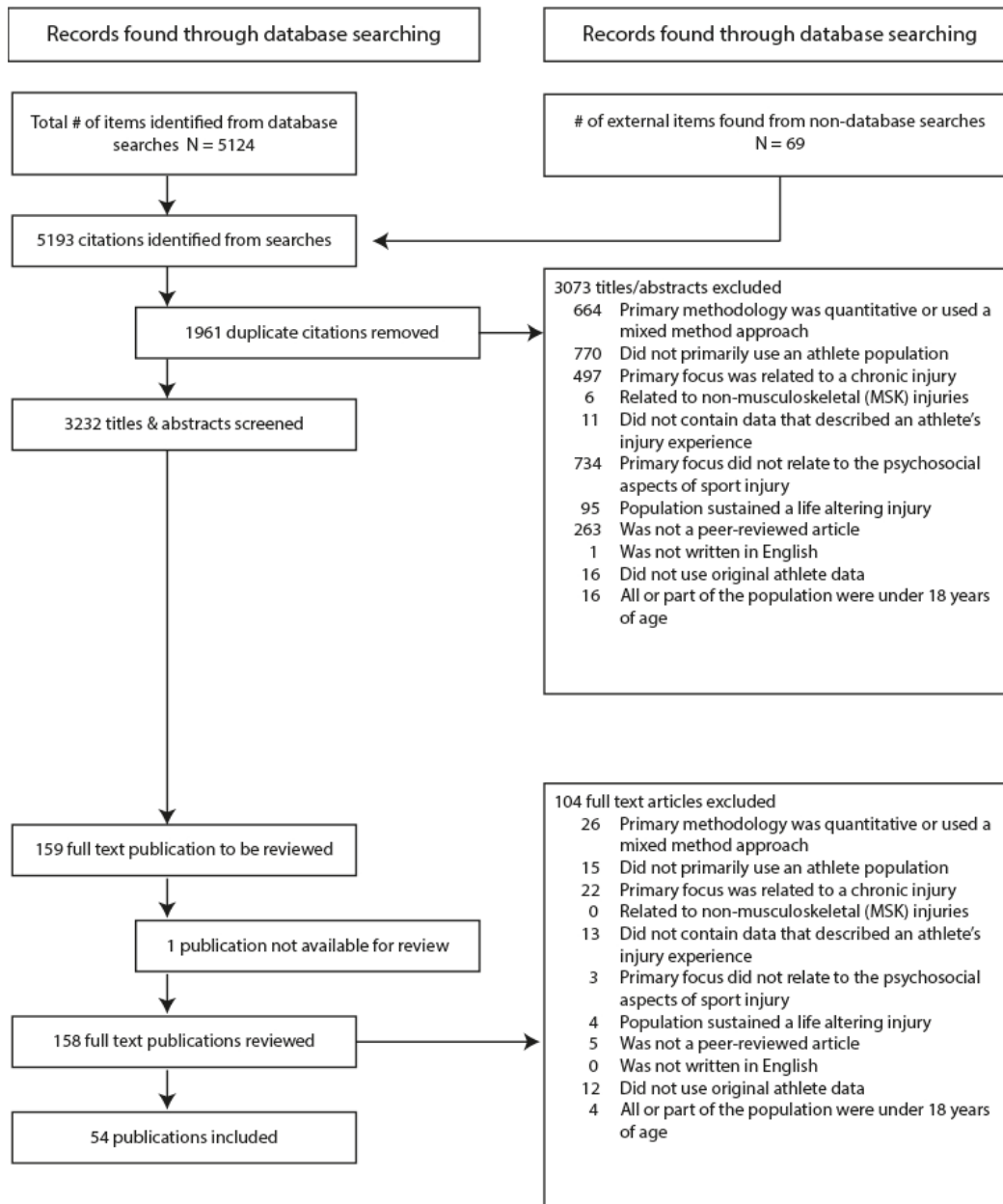
Upon completing the initial screening of the title and abstracts a further 3073 citations were excluded, leaving a total of 159 full text articles to be reviewed. Of these only one article was unavailable for review. Of these 158 articles, 104 articles were reviewed in full and excluded against the criteria. To ensure the transparency of the steps taken, figure five documents the flow of the process (Walsh & Downe, 2005; Liberati et al., 2009) and the final 54 articles to be included can be seen in Appendix A.

#### **4.1.3 Appraisal of the research**

Following the completion of the search strategy, the appraisal of the research took place in two distinct stages. The first stage required the collected literature to be initially assessed for quality and the second stage focused on the data abstraction and rigour of the analysis.

**Figure 5.**

*Process Flowchart for Meta-Study*



***Assessing the quality of the research***

Garside (2014, p. 68) suggests that there is a need for researchers to make a distinction between “...well-conducted and reported qualitative research from poor...”. Although there is still some uncertainty around the best method for assessing qualitative research, a number of alternatives have been proposed (for a review see Garside, 2014). Within this meta-study the quality of the articles was assessed before data abstraction was undertaken. During this process each article was reviewed alongside the three broad criteria suggested for use in qualitative systematic reviews - trustworthiness, theoretical

considerations and practical considerations (Garside, 2014). For each of these several questions were posed:

- Trustworthiness: Is the design and execution appropriate to the research question? Does the participants voice come through? How well supported by the data are any conclusions?
- Theoretical: Does this connect to a wider body of knowledge or existing framework and if is it appropriate? Are the researchers' interpretations of the concepts present? Was the research transparent throughout?
- Practical: Does the study extend our knowledge of the injury process? Does this study usefully contribute to the review?

Although three specific areas were targeted this list was not intended to be prescriptive or exhaustive, but rather is indicative of each paper's quality (Garside, 2014). Alongside the process, the quality of the research was also discussed through ongoing conversations with the research team, who acted as critical friends (Smith & Sparkes, 2006).

To briefly summarise the following points were noted. First, all of the studies utilised a design appropriate to the research questions, the voices of participants were heard but varied in depth, and in all studies the conclusions were supported by original athlete data. Second, considering the theoretical considerations, all of the studies connected to a wider body or underpinned the research with an existing framework and were for the most part transparent. Third, for the practical consideration each study extended our existing knowledge of the injury process and had something to offer to this review. At this point all 54 articles were considered useful to this review and therefore none were rejected as a result of this process.

#### **4.1.4 Data abstraction**

Upon completing the initial assessment of quality, each article was read multiple times and the key information extracted and summarised. To facilitate this a summary template (see Appendix B) was adapted from the meta-studies completed by Paterson et al. (2001), Clarke, Willis, Barnes, Caddick, Cromby, McDermott, & Wiltshire (2015) and Frost et al. (2016). Alongside this template a number of questions were developed in accordance with the three analytical components to guide the analysis, these are presented in table four. In an attempt to maintain transparency throughout the research process only details

specifically reported within each paper were included in the summary template. This was undertaken to ensure that the researchers own speculations of what occurred did not cloud the data abstractions. The summaries collected from the template were then used to inform the analysis for the meta-theory, meta-data-analysis and meta-method, and finally the meta-synthesis.

**Table 4.**

*Guiding Data Abstraction Questions*

Meta-Theory	Meta-Method	Meta-Data-Analysis
<ul style="list-style-type: none"> <li>• What frameworks were employed?</li> <li>• How does the theory inform the article?</li> <li>• How were the ontological &amp; epistemological underpinnings addressed?</li> </ul>	<ul style="list-style-type: none"> <li>• Is the research question clearly expressed &amp; relevant?</li> <li>• Is the role of the researcher considered?</li> <li>• Are there clear descriptions of the sampling techniques &amp; participants?</li> <li>• How adequately does the article describe the methods used? Are the analyses/findings adequately supported by the data?</li> <li>• What strengths/ weaknesses/ limitations does the article have?</li> </ul>	<ul style="list-style-type: none"> <li>• What are the key findings reported within this article?</li> <li>• What value do they offer to understanding the injury experience?</li> <li>• Are the findings supported by the athlete data?</li> </ul>

**4.1.5 Analysis of analytical components**

The analysis of the meta-study considers the included studies from four distinct analytical perspectives: meta-theory, meta-method, meta-data-analysis and meta-synthesis. To offer a brief explanation of each, meta-theory emphasises the study of the theoretical frameworks and philosophical orientations the research is grounded in. Meta-method encourages researchers to scrutinise the appropriateness of the selected methodologies and methods employed. The meta-data-analysis is the study of the findings within the research and involves the examination of the analysis and findings presented in the existing literature. The final stage of the analytical process is the meta-synthesis, which



brings together the analysis of findings, method and theory to offer new interpretations and insights (Paterson et al., 2001). As Clarke et al. (2015) highlighted the purpose of these components is to enable researchers to critically examine multiple perspectives of a phenomenon to reveal the similarities and differences, which then leads to the extrapolation of new findings and practical implications. As alluded to earlier each analysis was undertaken concurrently with each article being read multiple times.

### ***Meta-theory***

The meta-theory stage focused on critically appraising the theoretical frameworks, philosophical perspectives and underlying assumptions towards the research design. This involved the following: (a) identifying major paradigms or schools of thought and the emerging theory of each article, (b) considering the authors underlying theoretical assumptions, and (c) determining the application of theory and how this shaped the research question, choice of methods, use of analysis, and construction of findings.

### ***Meta-method***

The meta-method examined the appropriateness of the research design, methodologies and methods used. As a result of this process each individual paper was assessed for: (a) research questions, (b) role of the researcher, (c) theoretical traditions and orientations employed, (d) sampling procedures, (e) data collection procedures, (f) data analysis produces, and (g) measures of quality.

### ***Meta-data-analysis***

Paterson et al. (2001) highlighted that within this stage researchers are encouraged to adopt a data analysis strategy that fits with the research question and design, and consequently a thematic analysis was utilised. As highlighted by both Braun and Clarke (2006) and Sparkes and Smith (2014) a strength of this method of analysis is its ability to highlight similarities across a data set - from one single article or interview to multiple - without being restricted to a pre-existing coding scheme. Furthermore, it enables the research to consider both the social and psychological aspects of the data, a key aspect when considering the multidimensional elements of the injury process. Therefore, each article was thematically analysed using Braun and Clarke's (2006) six phases of analysis (table five).

**Table 5.**

*Phases of Thematic Analysis*

Phase	Description of the process
1. Familiarising yourself with your data	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2. Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme
4. Reviewing the themes	Checking if the themes work in relation to the coded extracts (level 1) and the entire data set (level 2), generating a thematic ‘map’ of the analysis.
5. Defining and naming the themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
6. Producing the report	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis

*Note.* Reprinted from “Using thematic analysis in psychology” by V. Braun, and V. Clarke, 2006, *Qualitative Research in Psychology*, 3, p. 87.

#### **4.1.6 Meta-synthesis**

The aim of the meta-synthesis is to draw together the insights produced from the three prior processes to generate new understandings of the phenomena being studied (Paterson et al., 2001). Through an iterative process of thinking, interpreting, creating, theorising and reflecting, insights from the meta-method, meta-theory and meta-data-analysis were considered to formulate a deeper awareness of the injury process, that not only describes the process but that helps us to understand an athlete's experience following an injury.

## **4.2 Results**

The results from the meta-synthesis included articles that focused on describing and understanding an athlete's injury experiences. All qualitative articles that met the inclusion criteria, up to December 2015, were included, with the earliest article dating back to 1990. Since the early 1990's, the number of published studies per year demonstrates the continuing growth in the qualitative injury research. From 1990 - 1999 a total of 10 qualitative studies were published, in comparison to 23 published studies from 2000 - 2009. Interestingly, the number of articles published since 2010 has again doubled, with 21 articles being published on the topic between 2010-2016. Not only does this show a growing interest in the psychology of sport injury but it also highlights the rapid growth in the use of qualitative methods.

The majority of injury research was conducted in the United Kingdom (20/54 studies), followed by the USA (9/54), Australia (9/54), Canada (7/54), Denmark (2/54), Sweden (2/54) and Malaysia (1/54). With four research projects being conducted in multiple countries. Typically, articles were published into a wide range of journals, the six most common publishers were the Journal of Applied Sport Psychology (5/54), Sociology of Sport (5/54), The Sport Psychologist (4/54), International Review for the Sociology of Sport (4/54), Journal of Sport Rehabilitation (4/54), and Research Quarterly for Exercise and Sport (3/54).

### **4.2.1 Meta-theory analysis**

In conducting the meta-theory analysis, emphasis was placed on critically exploring the theoretical lenses that guided each research article. As outlined within the data abstraction section only theoretical details documented by the authors were included within this analysis. Although a number of assumptions could have been made, it was considered that interpreting the authors theoretical assumptions would be contradictory to the aims of the meta-study and could allow misinterpretations to be made. Consequently, the results include details concerning intention of the research, schools of thought, theoretical frameworks used and philosophical underpinnings.

#### ***Identifying the pursued outcome***

Within this section of analysis consideration was given to the perceived intention of the research. Wallace and Wray (2016) highlight four outcomes that can be generated from

research, knowledge-for-understanding, knowledge-for-critical evaluation, knowledge-for-training. Considering the reviewed articles in line with these four categories, analysis highlights a dominance of research focusing on generating knowledge-for-understanding and knowledge-for-critical evaluation. Within the 54 reviewed articles only one article focused on knowledge-for-action.

### *Schools of thought & theory*

The meta-theory analysis demonstrates that all of the 54 studies were broadly framed within one of nine injury specific schools of thought. These were stress, coping, social support, time and injury, antecedents of injury, intervention and treatment, identity, injury culture and the responses to sport injury. Of these nine schools of thought, the most dominant was responses to sport injury, which accounted for 28 studies and focused on understanding the cognitive, emotional, and behavioural responses to injury alongside the personal and situational factors that influenced these responses. The remaining schools of thought focused on identity (10/54 studies), intervention and treatment (4/54 studies), injury culture (3/54 studies), growth (2/54), stress (2/54 studies), time and injury (2/54 studies), social support (2/54 studies), and coping (1/54 studies).

Although there were nine distinct schools of thought, there were no dominant framework(s) which supported each of these schools of thought. Instead a total of 17 theoretical frameworks were cited across the 30 studies, which specifically cited a framework, and a further 24 studies that did not mention the application or consideration of any framework. Of these 17 frameworks, the most dominate model cited was the Integrated Model of Sport Injury Response, which was cited by 12 studies and used to underpin research within the responses to sport injury and the antecedents of injury. Additional frameworks included Self-Determination Theory (SDT; 3/54 studies), Symbolic Interactionism (3/54 studies), Bourdieuson framework (specifically his notion of habitus; 2/54 studies), Model of Prediction of Sport Injury (2/54 studies), Narrative Theory (1/54 studies), Conservation of Resource Models (1/54 studies), Theory of Cognitive Appraisal (1/54 studies), Udry's Stages of Injury (1/54 studies), Lazarus Transactional Model of Coping (1/54 studies), Grief Model (1/54 studies), Two Stage Model of Recovery (1/54 studies), Foucauldian (1/54 studies), Frank's Body Narratives (1/54 studies), Deleuzian Model (1/54 studies) and Lupton's work on Risk, Body and Identity (1/54 studies).

### ***Philosophical assumptions***

For each of the 54 studies the ontological and epistemological assumptions were analysed. Only five studies included their philosophical beliefs. Of these five only two studies (Hammond, Lilley, Pope, Ribbans, & Walker, 2013 and Salim, Wadey, & Diss, 2015) cited both their ontological and epistemological beliefs. With Hammond et al. (2013) citing that the research was underpinned by a pragmatist (epistemology) and relativist (ontology) approach, while Salim et al. (2015) cited that their research was underpinned by a critical realism (epistemology) and a modified dualism/objectivism (ontology) approach. Although the remaining three studies offered the reader an insight into their core assumptions this was in the form of either an epistemological or an ontological statement.

### **4.2.2 Meta-method analysis**

The meta-method analysis considered how the injury experience had been explored by considering what methodological choices had been made by the authors and how these had been applied within the research. The results from this analysis have been split into eight distinct aspects of the research process.

### ***Research question & purpose***

When considering the research questions for each study the purpose and questions posed for each were considered. Interestingly, of the 54 articles all included a specific statement of purpose but only five mentioned the specific research questions guiding the project. Of these five studies, the questions were articulated as what, who, and how questions.

### ***Role of the researcher***

Within the 54 studies, the role of the researcher was mentioned by 17 studies. Of these 17 studies, nine took the form of an ethnography and placed the researcher(s) as a central point within the study, typically as an athlete, practitioner or within a support role (e.g., waterboy, general ‘gofer’). Of these nine studies five were completed by the same two authors (Jacquelyn Allen-Collinson & John Hockey) and focused on their experiences of middle-distanced running and injury. Considering the studies that did mention the role of the researcher, details typically included an understanding of the experiences (e.g., injury and industry specific) they bring to the process, whether their role was participatory

or non-participatory, previous experience within qualitative research, and the researcher's philosophical notions.

### ***Research methodology***

Reviewing the methodology for each study, 45 of the 54 studies included a statement about the methodological approach used. Of these studies, eight methodologies or statements of research design were included - grounded theory, case study, ethnography, phenomenology, narrative, existential-phenomenology, longitudinal and qualitative. Of these, qualitative (16/54) and ethnography (12/54, including autoethnography) were the most cited. Yet while qualitative methodology was the most cited tradition it offers the reader little in terms of clarity. Studies declaring this approach suggested that they sit within the broad approach of qualitative research but offered little insight into research methodology.

Finally, in reviewing the methodology for each study, it is also important to highlight that the authors of multiple papers typically utilised the same tradition to underpin their research. For example, Allen-Collinson and Hockey co-authored and authored five papers between them and each paper was underpinned by an auto ethnographical approach. Similarly, Gould and colleagues consistently suggested their research was underpinned using a qualitative tradition.

### ***Sampling***

When considering the selection of participants, all of the included studies presented a synopsis of the participants' details either descriptively or in a tabulated format. All of the studies included, descriptions of the sampling techniques used, current injury status of the participants, sample size, and gender.

Across the 54 studies, 25 studies specifically mentioned using a purposeful sampling technique. However, of these 25 studies only 20 studies identified the specific type of purposeful sampling technique they used. Typically, this included using one of the following sampling strategies - convenience sampling, criterion sampling, maximum variation sampling, snowball sampling, theoretical sampling, heterogeneous sampling, homogeneous sampling, and stratified sampling. Although 29 of the studies did not specifically mention using a sampling strategy it could be inferred though their participant descriptions that a purposeful sampling technique was employed.

The injury status of the athlete typically included whether they were currently

injured, the type of injury sustained, and the severity of the injury. All except three studies documented whether the sample participants were athletes who were currently injured (25/54), athletes who were not currently injured (20/54) or had used a combination of injured and non-injured athletes (6/54). The types of injuries reported varied to include cuts/bruising, sprains, strains, ligament damage, ruptured anterior cruciate ligaments, facial issues, and back pain. Similarly, severity of injury varied between studies with the shortest duration of two weeks to the longest duration of two years.

The overall number of participants included in each study varied from one to 48, although the majority (38/54) of these studies utilised a sample size between 1-12 participants. Within these studies the age of participants ranged from 19-52 years old at the time of the study. The majority (37/54) of studies used a combined male and female group, with only 12 studies using a solely male sample and 5 using a solely female sample.

### ***Data collection***

In the studies reviewed, data was collected through a wide range of methods which included interviews, field notes, diaries/logs, dictated audio, observations, informal discussions, emotional recall, focus groups, sociological introspections and vignettes. From the total sample, 37 studies utilised a single method to collect data while 17 utilised multiple methods to collect data within the study. Of these methods, the interview method was the most dominant data collection tool with 46/54 studies using this method. Of the 46 studies utilising an interview method, 32 studies used a semi-structured format, two studies used a structured format and two studies used an unstructured format. A further ten studies reported using an interview method but provided little information on the type. In total, 35 of the studies conducted a one-off interview while 11 completed multiple interviews across the process. The interviews ranged from 30 minutes to 220 minutes.

### ***Data analysis***

Of the sections reviewed within the meta-method the approaches used for data analysis were by far the most diverse in terms of different approaches taken. A total of 18 different forms of analysis were used across the different studies including content analysis (10/54), constant comparative analysis (9/54), thematic analysis (6/54) and frequency analysis (3/54). Furthermore while 18 methods were cited across the included studies, nine studies failed to specifically mention how the data was analysed. Interestingly, of

these nine studies, eight used an ethnographic methodology.

### ***Measures of quality***

A total of 43 studies reported the use of at least one method to enhance the quality of research of analysis. Of these 43 studies, 26 utilised multiple methods of enhancement while 17 used one single method. The most prevalent included peer debriefing (29/43), member checking (25/43), triangulation (11/43) analytical memos (4/43), inter-rater reliability (3/43) and bracketing (3/43).

### ***Data representation***

Of the 54 articles reviewed only two-forms of representation were offered to present the research findings: a realist tale and autoethnography. A total of 47 articles used a realist tale, while the remaining seven used autoethnography. Interestingly of the seven articles to use an autoethnography, five of them were written by the same two authors - Allen-Collinson and Hockey.

## **4.2.3 Meta-data-findings analysis**

The primary focus of the meta-data-analysis was the analysis of the original findings presented within the 54 articles reviewed. The results from this meta-study identified seven overarching themes that athletes experience following injury (see Appendix C for themes and the papers in which they were found in), these were (a) injury culture, (b) athletic identity, (c) underlying factors underpinning response to injury, (d) navigating the rehabilitation process, (e) coping with injury, (f) social support and (g) benefits of sport injury. Each of these themes will be discussed, considering how each adds to our ability to describe and understand an athlete's injury experience.

### ***Injury culture***

In competitive sport, athletes learn cultural behaviours through socialisation experiences (Nixon, 1992; Wiese-Bjornstal, 2010). From a young age, the normalisation and rationalisation of injury, pain and risk may form part of these learnt cultural behaviours. Consequently, it is not surprising that injury culture was described in 28 of the articles reviewed. The theme of injury culture, includes the common practice of normalising pain, the acceptance of risk, a culture of blame and the continual pressure to play through pain



and injury. At this point it is worth highlighting that part of this theme demonstrates how participants also used these behaviours as a method of coping within the sport culture. The normalisation of pain describes the tolerance that may be developed towards injury, and at times, the disrespectful attitude towards pain and injury within sport. The literature suggests that living through physical pain may be an everyday occurrence for some athletes. For these athletes, injury was perceived as a continual and expected part of sport participation. In line with the expectation and acceptance of injury, the ongoing threat of not being selected for up and coming competitions encouraged athletes to withhold injury information from selectors or coaches about their injury:

My abs [abdominal muscles] are in constant pain and the trainer says that I have to be really careful with them. I try not to let any of the team selectors know that they bother me - or I may not get picked to play. (Howe, 2001, pg. 296)

The prevalence of pain on a daily basis was often combated through the use of medication. As one athlete highlights, medication was routinely consumed to help them manage their pain and continue to perform:

I don't think I've ever been on stage where there's not something now that hurts...I said to Jeremy Isaacs [then Director of the Royal Opera House, London], 'instead of free water can't you get Neurofen [Ibuprofen] to sponsor us', because if you shook every single dancer up, they would rattle with the amount of Neurofen inside their body! (Wainwright, Williams, & Turner, 2005, p. 57)

Accepting the risks of sport was perceived by some athletes as a necessary acceptance that formed part of their sports participation. As one athlete expressed "Ninety percent of the time a player will play with a niggling injury. It's very rare for a player to go into a game one hundred percent fit" (Ruddock-Hudson, O'Halloran, & Murphy, 2012, p. 380). Athletes were often aware of the risks of playing injured but chose to play through pain, accepting the "no pain, no gain" (Pike, 2005, p. 205) culture.

I think with any job you do you're putting yourself at risk, like firemen, people like that...sport is obviously on a much lower scale than going to a burning house...You're going to have to be prepared to put your body

through a lot of stress and have aches and pains, and when you've finished playing then you're probably going to feel the pain as well. (Hammond et al., 2013, p. 7)

The culture surrounding injury practice was further influenced by the perceived importance and impact of each injury on performance. As one athlete highlighted, an injury only becomes important when it impacts the performance of the players: "they [the coaching team] are not going to pull you out if you're doing well basically, even if you are more than likely injured" (Hammond et al., 2013, p. 8). Perhaps more worryingly, athlete's reported that coping with pain was viewed as a test of their profession, something that helps to distinguish between successful performers. This was summarised by one athlete from Wainwright et al. (2005):

Obviously some people were never going to make it in dance, because they didn't have the guts to come in every day and get on with it. They always had pain and it affected them; whereas some people had pain and it didn't affect them. So you could tell the people that were really going to make good company members. (p. 57)

Alongside this normalisation of pain, athletes reported experiencing the ongoing pressures to play and/or return to competition. This pressure was reported to stem from members of the coaching team, teammates, medical staff, national governing bodies and the players themselves. One athlete highlighted the perceived pressure experienced from the coaching staff "...there's so much pressure from outside, from high representative coaches who want to select you and you're trying to fight for contracts and things, then this happens. You know it's very frustrating." (Evans, Wadey, Hanton, & Mitchell, 2012, p. 923). Yet, another athlete also highlighted the internal pressure they placed on themselves:

You may think I'm thick but the pressure for me to play is unbelievable. When no fracture showed [on the X-ray] I thought hell it [the pain] must be in my mind...Now with the injury like it is I may lose my spot on the Welsh squad. (Howe, 2001, p. 297)

In some sporting cultures, the injury severity and availability of rosters dictated the level of pressure athletes felt regarding playing while injured. This pressure was described by

one footballer:

We have this term in football. People refer to it as a difference between pain and injury. If you can walk or you can run to any degree, you know, they look at your injury in terms of percentages. If you're at seventy percent and it's better than your second stringer's hundred percent, then you're playing. So, you tend to take a couple of painkillers and tape her up nice and tight and ice before you play, and away you go. (Young, McTeer, & White, 1994, p. 184)

The culture surrounding injury also fostered a culture of neglect in athletes, alongside a sense of blame, and at times a feeling of being discarded or treated differently. In particular, these feelings stemmed from a sense of illegitimacy surrounding injury. As one athlete reported: “The coaches insinuated that I was faking it, to the point where I felt uncomfortable telling them that I was hurt. It put me in an awkward position to even play. They made me feel like I was faking it” (Granito, 2002, p. 250). Furthermore, other athletes reported being blamed for their injury and experienced a lack of empathy from their coach:

The first day I got back, three days after surgery, the coaches told me that the reason [my jaw is broken and wired shut] is because I'm the one who made the mistake [athlete is now crying]. It was just like I couldn't do anything about getting hit and I had no control over it and that it was my fault that I got hurt from the coaches' standpoint. That was tough to hear. (Grindstaff, Wrisberg, & Ross, 2010, p. 7)

As a result of this illegitimacy of injury, athletes reported being let down by their sports clubs due to the lack of interest or level of support shown during their injury experience. As one athlete expressed, “I kind of became invisible to the coaches. I became someone on the side-lines who was running the clock rather than part of the team” (Granito, 2002, p. 249). Interestingly, this led athletes to weigh up the cost of disclosing their injury to individuals within their direct sporting environment. Subsequently becoming more or less vocal about the pain they were experiencing depended on whether admitting pain was perceived as advantageous or punitive. This was expressed by one athlete who stated that “in the past I would ‘cry-off’ due to pain and minor injury now my livelihood is dependent on performing well every Saturday. You have to suck it up in the modern era - hide the

pain and play on” (Howe, 2001, p. 295).

### *Athletic identity*

Injury has been shown to not only result in the loss of physical functioning but also the loss of identity. This synthesis demonstrates the prevalence of disruption to athletic identity within 25 of the articles reviewed discussing athletic identity.

### *Fragmented athletic identity*

The time and effort an athlete invests in their sporting career may foster a strong sense of self that is developed from this athletic role (Brewer, Van Raalte, & Linder, 1993). An athletic sense of self has been characterised in the literature by Brewer et al. (1993, pg. 237) as “the degree to which an individual identifies with the athlete role”. While strongly identifying as an athlete may be conducive to success when an athlete is healthy and active, conversely this strong athletic identity may be highly disruptive after injury (Brewer, 1993; Brewer, 2010; Leddy, Lambert, & Ogles, 1994). This disruption is demonstrated through the confusion and uncertainty that can occur when injury fragments an individual’s athletic identity. For example, as one athlete stated, “I’ve always prided myself on being healthy and strong and it was really confusing feeling weak” (Young et al., 1994, pg.187).

The literature demonstrates the struggle that may be experienced by athletes when attempting to accept the impact that injury has had on their life and sense of self. Within the literature, two main causes of a fragmented identity were identified. First, the inability to engage in preferred activities:

It was hard because I guess I am a rower. I define myself as a rower and when you don’t have that and you don’t have those people around you, you feel worthless. It makes up a big part of your life. When you see someone you haven’t seen in a while and they say ‘how’s the rowing going’, and you ‘say well it’s not at the moment.’ When they ask what else are you doing and you say, ‘well nothing,’ there’s a big void there to fill and it’s pretty hard. (Podlog & Eklund, 2006, pg.54)

Second, identity was also fragmented by the disruption to core assumptions that injury would not happen to them, and that sport would always be available to them as an athlete:

When you start getting a bit higher up the ladder, you start thinking about the roles that are really important for you and you do put a lot of things in your life on hold...It is a huge part of you and when you don't do it you do feel very strange. It's a real kind of empty, weird feeling. You don't know what to do with yourself and whole days just go by and you're just sat there like that [stares blankly into space]. It's the extremity of it all. One minute I was doing extraordinary things like jumping, landing, turning, and within a second you can't walk. It's literally in a split second, and that's very hard to come to terms with. (Wainwright et al., 2005, p. 52)

While a fragmented athletic identity may be common among injured athletes, it is also suggested that this fragmentation may be accentuated if the injury is perceived to threaten the connection between self and the athlete's career. Athletes who have built a career around their sporting ability have reported a stronger, more intimate connection between self and career. For example:

I suppose basketball is almost a part of me now because it's been in my life for so long. I like playing basketball and I liked myself better when I played—it's almost like an identity thing for me—you know, I'm tall and I play basketball...I just feel like I'd be nothing if I didn't play. (Mankad, Gordon, & Wallman, 2009, p. 6)

As a result of their fragmented athletic identity, athletes described a decreased sense of pride and an altered perception of self. This is described by an athlete from Ford and Gordon (1999, p. 249), who stated "I've definitely lost a sparkle [since the injury]... I'm normally the kind [of person] who's telling jokes to everyone...and now I just have no motivation to do that". This disruption of athletic identity not only prompted suffering but also highlighted the desire to regain their pre-injury athletic self. This desire for an athletic identity was described in Fiset's (2015) autoethnography through her own personal reflections and developed vignettes. Within these she highlighted the athlete's desire to regain old identities, alongside the uncertainty of how this could be achieved: "I continue to long for and desire to be an able-bodied athlete. Without sport, without a pain free moving body, I do not know how to identify; I do not know who I am" (p. 76). Furthermore, Fiset (2015) also illustrated the sense of belonging associated with her athletic identity: "I longed to be an athlete again, to be a part of a team, to compete and

push my body's limits, to find a space of social acceptance and belonging" (p. 80). In particular, athletes reported that the fragmented athletic identity influenced social acceptance and how they would like (or dislike) to be perceived by others. For example, "I don't want to be looked at as an invalid, it was worse enough when people were holding doors for me, cause they saw me as handicapped, but temporary" (Mainwaring, 1999, p. 149).

Several studies reported that athletes disassociated themselves from their injury (Allen-Collinson, 2005; Allen-Collinson & Hockey, 2001; Fisette, 2015; Young et al., 1994). Typically, this was reported through the depersonalisation and objectification of the affected body part or the pain itself. This is illustrated in a quote from Allen-Collinson and Hockey (2001), which describes the injured body as 'IT':

IT has rejected our sacrifices and flung them back in our faces. IT has rejected our attempts to do all the right things: assiduously keeping our bodies well hydrated; topping up the complex carbohydrate levels; training as much as possible on soft surfaces; following the tedious nightly routine of post-run stretching and mobilising; monitoring the wear patterns of training shoes. All this, and our sacrificial offerings are rejected unceremoniously; our efforts are scorned and we are betrayed! All that sacrifice to IT and here we find ourselves, injured and making no tangible improvement even after a month of struggle. (p. 17)

The final aspect of the fragmented self that athlete's grappled with was how the injury acted as a constant reminder of their lost identity. Thing (2005) illustrated that injury can serve as a reminder of the athlete they used to be:

It's really hard, you know, to face the fact that there are things you can't do anymore. There are some things you may be able to do at some point if you get rehabilitated properly or get the right operation, maybe. Certainly some things you would love or you would love to do, but you just can't do that now. That's hard. (p. 187)

For other athlete's the injury acted as a constant reminder by emphasising that they "...now were not even physically on a par with "ordinary" folk." (Allen-Collinson & Hockey, 2001, p.13). Similarly, Thing (2005) highlighted that athletes referred to themselves as handicapped or disabled, even if this was only temporary:

All of a sudden I realise how extremely handicapped I am. I mean, and it strikes me if I'm going back to my school at all. That it appears to be a matter of many months. And so I just give up completely. I don't want to live or stay at home, don't want to go to school, or I don't want to do anything. And my parents get totally scared and say: 'Tina, don't talk like that, and don't think like that. So I just can't handle it anymore, it all falls to pieces for me. (p. 189)

*Restoring and reclaiming the fragmented self*

Echoing the words of Athens (1995) individuals caught in the maelstrom of self-crisis find themselves faced with the need to bring a new meaning to their sense of self. The literature highlights that following injury athletes either attempted to restore their pre-injury identity or reconfigure this into a new identity. As Wainwright et al. (2005) suggested, an injured athlete can learn from their injury experiences to alter and re-invent their identity:

By the time I was 28 I decided that having been at it since I was ten, that I was burned out. I was having certain problems with my back and I went to see an orthopaedic surgeon and he said, 'If you don't stop you're going to have trouble'. So I stopped... Those injuries caused me to re-think and I had to – and I use the word very strongly – I had to re-invent myself. I had to come back and re-invent myself. (p. 61)

This finding was further supported by Allen-Collinson (2003) and Hockey (2005) through their work on injury in running. Here both studies reported that athletes reconfigured the meaning of sport after injury. Examples of this reconfiguration included changing the perceived importance of sport as well as changing what constitutes successful participation. These are shown in the following examples:

Great! We have now run for an hour each day for a week, no speed in it, but we are back to where we were 2 years ago! All the effort and all the patience have been worth it. It's not quite the same, though; I can feel that, and J does also. We are less obsessed by the short-term perspective: times for races, times for training efforts, etc. I suppose the experience has given us a lesson in terms of what is really important, namely, just keeping the daily training

going. So, in a way we are different kinds of runners now. We are back physically but in terms of our heads we have moved. (Hockey, 2005, p. 52)

A conversation that has cropped up a lot this week is about what running means for us now. I suspect we are having this kind of talk because we have just got back to where we were in running time [1 hr]. We both agree the most important thing about running now is just daily doing it, not whether we are doing it well or badly, not for preparing to race, not the racing, not the improved performances, but just doing it. Getting out there, putting the time in. All the rest is secondary now. If those things happen, they happen. Being without it for such a long time, when you get it back, the absence has sort of impressed the running essence on you. (Allen-Collinson, 2003, p. 346)

The ability to restore, reclaim or reconfigure athletic identity was reported as a helpful strategy, following injury. The strategies used to achieve these included athletes acting ‘normally’, adopting the visual appearance of an athlete, maintaining athletic routines and engagement with the specific sport culture (e.g., through the specific sport literature or sports friends). Of these four strategies, acting ‘normally’ was the most frequently reported approach used. This focused on the athlete hiding their pain and any physical limitations from the injury as well as regulating and concealing their emotions. As the quote below highlights injured athletes may hide their physical limitations because of fear:

If I am truly honest, I know I intentionally moved in ways that would not draw attention to the physical limitations I encountered on a day-to-day basis. Not only did I fear that others would know that I was an able-bodied imposter, but that one day, passing would not be an option for me. (Fisette, 2015, p. 78)

In addition to acting ‘normal’, the literature also showed athletes strategically presenting the visual appearance of being an athlete to restore/reclaim their athletic identity. This was achieved through dressing in the appropriate sporting attire and maintaining a preferred body shape. This strategy for maintaining an athlete identity is shown in Allen-Collinson and Hockey (2007) through statements such as “in wet weather we donned Gore-Tex® jackets and waterproof running tights, clothing easily recognisable by fellow



aficionados/as” (p.391) and:

I noticed today that it’s four months since we have run. What’s interesting is that neither of us has put on any extra weight, so whilst at the moment we can’t run or even jog, we still look like distance runners. That helps because I can still see myself in the mirror and not someone else. I feel that would be even more difficult if I couldn’t see my proper self. I know I can’t run at the moment, I know I’m totally unfit for running, but it looks as if I am still running. That’s comforting because objectively I know when I start running again the experience will not be as hard as if I were carrying surplus poundage. More importantly, I feel I am still here. I can see my running self. So because I still look like I can run, the possibility is I will eventually. (p. 390)

The third strategy used by athletes was to maintain routines previously associated with their sports. This included training in familiar places and maintaining diets. In addition to this, athletes also attempted to maintain the cultural specifics of their sports, which included the use of accepted vocabulary, engaging with specialist literature and interacting with sporting friends. This is shown in the following example from Hockey (2005):

I have just met Mike who I have not seen for over a year, and his first comment was: “Well you still look like a wizened old Vet!” His usual cheeky self, but it’s nice to know, as it’s 8 months without a run. (p. 50)

### ***Underlying factors underpinning response to injury***

The articles reviewed in this meta-study support the notion that following injury athletes are likely to experience a plethora of emotions. Figure six provides a visual representation of the emotions expressed across the 54 articles analysed. The prevalence of each emotion across the research is distinguishable based on the size of the font (the bigger the word, the higher the number of articles reporting it).

**Figure 6.**

*Visual Representation of Reported Emotions*



Figure six illustrates the prevalence of frustration, anger, shock, anxiety and depressive feelings. Typically, these emotions were expressed through descriptions such as “It sucked because I couldn’t run.”, “mad at self for being stupid”, “I dropped to the floor in shock just processing” “numb”, “bad attitude toward team”, “boiling over”, “I think a little bit of frustration” and “I was just a little bit hysterical because I knew I was at least done for the year.” (Clement, Arvinen-Barrow, & Fetty; 2015; Russell & Weise-Bjornstal, 2015; Salim et al., 2015; Udry, Gould, Bridges, & Becks, 1997).

While research has frequently identified the presence of these emotions following injury it is important to recognise the oscillation of emotions that is clearly described in the literature. For example, the following extract is taken from a training log in Allen-Collinson (2005)

Went into the physio’s today, positive and cheerful. Unfortunately, in her wisdom, she decided to ‘test’ my progress by making me do a squat. . . Didn’t even attain the full squat position when I felt the knee suddenly give way, snap, break, grind – whatever. Horrible, shooting, stabbing, crunching, gritty pain. Shocked into silence. I look around for something with which to pull myself up and out of the pain. I’m stuck for what seems forever. An age passes before J comes across the room to help me up. Burning hot, liquid rage engulfed me. How did I manage not to attack her? But by the time I got to the door of the clinic, all I felt was deflated, totally deflated, despair. Red

heat turned to cold, dark grey. (p. 232)

The above quotation demonstrates that fluctuations may be triggered by circumstances surrounding the injury. Yet, Udry et al. (1997) also demonstrated the moment-by-moment fluctuations of emotions that may occur:

I kind of went through ups and downs, as I'd have moments of hope and say, "I know I can do this, I can get through this, I can get back on top," and then there were other times where I just was like, "I just gotta be realistic about it, there is no way." (p. 239)

Although the range of emotions experienced during the injury process may be specific to each athlete, the literature also revealed a number of underlying properties of injury that influence how an athlete might respond after injury. These included the timing of the injury, uncertainty surrounding the injury, security of roles and position in the team, anticipated future impact, and loss.

Timing of the injury referred to the occurrence of the injury at crucial points in the athlete's season or career. As one athlete described "Sometimes your competitive schedule doesn't coincide with your recovery schedule, and you have to compete. Athletes feel like they have to do it. And you take that chance sometimes" (Bianco, Malo, & Orlick, 1999, p. 164). For some athletes this was further exacerbated if they were close to the end of their contract, as one athlete reported "...you're trying to fight for contracts and things, then this happens, You know it's very worrying" (Evans et al., 2012, p. 922). Likewise, the importance of forthcoming competitions was reported as a timing concern for athletes, as one athlete described "Damned if I was going to miss another Olympics." (Bianco et al., 1999, p. 164). As the above quotations demonstrate, the timing of the injury may cause fluctuations in emotion, from increased determination (as shown in Bianco et al., 1999) to increased anxiety (as shown in Evans et al., 2012).

In addition to the timing of the injury, a second underlying factor influencing responses to injury was the level of uncertainty surrounding the injury and/or whether the athlete would recover/return to their previous level of physical functioning. Experiencing uncertainty about an injury often caused athletes to question their experiences and doubt their current goals:

Was my body-self ill? Sick? Broken? Injured? Will I become paralyzed?  
Will the surgery 'fix' the problem? Will I be my 'old' self again? I do not

know what I am, what my body-self currently is, or what socially constructed box I 'fit' (or don't fit) in, but I do know that the diagnosis confirmed that my body was failing. (Fisette, 2015, p. 75)

In particular, emphasis was placed on a lack of understanding about the injury process and the diagnosis of injury. For athletes who reported a lack of understanding, this centered on being unclear of what to expect and what was happening: "if it's the first time you've done it [injury], you really don't know what to expect, so that's really difficult" (Evans et al., 2012, p. 921). Emphasis was placed on not knowing what to expect, the nature of the injury and the uncertainties about injury severity:

When it happened I had no idea what I was getting myself into and it was only after I'd seen about four doctors, four orthopaedic surgeons, that I realised...you don't go into surgery and come out after a few days and then you go back out and ski or skate or whatever you do. (Mainwaring, 1999, p. 148)

Athletes also often focused on the uncertainty of returning to play. As one athlete suggested: 'I'm concerned, am I going to play again...the uncertainty surrounding whether I will recover sufficiently to play at the level I did before was a constant worry?' (Evans et al., 2012, p. 923). When return to play was envisioned, uncertainty focused on the risk of re-injury of the already damaged body. For example, "My biggest fear is doing it again, being out, not being able to play...I'd be dead, I'd be lost without my basketball and my friends are all basketball, my life is basketball" (Mankad et al., 2009, p. 5).

The third underlying factor that underpinned responses to injury was the security of the athlete's position and role on the team. This factor was particularly prevalent if the athlete had not achieved their desired results prior to injury, if they were competing for a specific position against others or if they perceived their replacement player to be competent. For example, one athlete cited in Howe (2001) described feeling pressure to playing injured because of concern that his position was under threat.

Since you have been around asking odd questions about my injuries and stuff I have really noticed how things have changed at the club. In the past I would 'cry-off' due to pain and minor injury now my livelihood is dependent on performing well every Saturday. You have to suck it up in the modern era - hide the pain and play on. (p. 295)

For injured athletes within leadership roles (e.g., captains), this concern regarding their position extended to how their injury was affecting their standing within the club environment and connection with other players. As one athlete reported:

As captain you feel you are losing that real close contact with the team. I don't feel confident to stand up in front of the players and say that this is what you should be doing because I'm not out there with them. I've started to feel as if I am drifting away from being captain of the players. (Ford & Gordon, 1999, p. 250)

In addition to how athletes perceived their own position and role, athletes also demonstrated concern that others would perceive them differently. In particular, athletes highlighted a sense of fear about appearing weaker or being labeled as “damaged goods” (Tracey, 2003, p. 287), a fear about not meeting others expectations and being found out that they were “...an able-bodied imposter...” (Fisette, 2015, p. 78). As one athlete highlighted: “Ah, I just thought that it [injury] would be viewed as weakness and that's not the way I wanted people to view/see me as.” (Russell & Bjornstal, 2015, p. 167).

The fourth underlying property influencing responses to injury was the likely impact that injury could have on the athlete's future. These future concerns included career, health, family, significant others and financial situation. In particular, athletes contemplated their future and whether continuing to play sport was the right decision. This future worry is highlighted in Podlog and Eklund (2009)

I went through a period of about a month just after I did the injury where I had no improvement and I couldn't sit down. Everywhere I went I had to lie down or stand up. I had a lot of trouble driving a car and even walking and lifting my knee up was hurting. At that point, I was contemplating whether it was worth continuing. I've still got a fear that if I keep pushing and pushing for years, it might affect me later on. I'll do everything I can to row this year but if my back's a big problem then I might think about not rowing again after the Olympics. (p. 56)

For contracted athletes, the concern over potentially losing financial and/or equipment support was an ongoing concern. As one athlete reported in Gould, Dry, Bridges, and Beck (1997a) “They stopped calling. I never received my contracts. They wanted to wait and see...they were like ‘Oh well, we don't want to put any money into her until we know

she's all right" (p. 372). Where athletes were required to finance their own treatment and recovery this added additional future concerns. For example, one athlete reported "...it [rehabilitation] was stressful because of the money." (Evans et al., 2012, p. 923) whilst another questioned the need to pursue medical support due to financial demands: "...to justify pursuing the medical quest, given the expensive fees for private consultation and treatment" (Allen-Collinson, 2005, p. 227).

The final underlying property was the amount of loss experienced by the athlete after the injury. A sense of loss was reported as a result of missing out on opportunities, through being incapacitated and through a loss of physical fitness and/or conditioning. Athlete's responses to injury were often dependent on the loss of training time, competitions and/or future events, not reaching expected goals and missing out on opportunities to improve. As one athlete described "I wondered what I could have done...if this hadn't happened...I was totally peaking...you have these hopes and dreams and goals and all of a sudden, just in one day, our whole life changes" (Gould et al., 1997a, p. 365). Thus, athletes often focused on opportunities they should or could have been able to take, "I was just gutted, I missed the Six Nations [major International competition] and on top of that the World Cup." (Evans et al., 2012, p. 922). Furthermore, for some participants loss was suggested to be more difficult to cope with than the injury itself:

The injured knee is not what the worry is...what you miss is playing football. I'm not playing again until next year, so it doesn't really matter how the knee is now, whether it's sore or not, it's not playing football until next year that is the most difficult to deal with. (Ford & Gordon, 1999, p. 249)

Loss was also experienced through the feeling of being physically incapacitated. This is summarised by one athlete, who reported that they were unable to carry out simple day to day tasks: "I couldn't get myself around. I couldn't drive and I couldn't walk. I was on crutches for over six weeks. Just the day to day things were quite frustrating at the time." (Wadey, Evans, Hanton, & Neil, 2012, p. 149). Being incapacitated not only included the experience of being physically restricted and/or having limited mobility but also the loss of independence and freedom. Both aspects were highlighted by one athlete from Mankad et al. (2009):

For 3 months my mum had to help me into the shower, you feel so frustrated

because you can't do anything...I watched everybody doing sport and I can't play it and that's frustrating. I couldn't go out with my friends [to] nightclubs because I was on crutches and it was all just shit [sic]. (p. 6)

Athletes illustrated the mundane tasks that they now struggled to accomplish. These included 'taking a bath', 'getting a drink of water', 'making dinner', 'walking', 'driving', 'going up and down stairs', and 'going food shopping' (Wadey et al., 2012, p. 885). While numerous daily difficulties have been suggested Fiset (2015) exemplified these struggles in her autoethnography writing after numerous back injuries:

How am I going to get my underwear and shorts on, as well as my socks and shoes? If I bend forward the pain will intensify, immobilizing me. I drop the black jockey cotton underwear to the floor. I step my right foot into the right hole. My heart begins to race; my breath is almost to a pant. I quickly lower my body onto the bed and rock onto my back while extending the right, pain free leg into the air. I grab onto the underwear with my right hand, while rocking into an upright-seated position. Stabbing. Stabbing. Throbbing. I take a deep breath in through my nose and exhale loudly, trying to lower my pounding heartbeat and my breathing, which is near hyperventilation. I wiggle my left foot into the underwear, which I am holding at my ankle close to the floor. Tears stream down my pasty face, feeling sorry for myself. (p. 74)

The sense of loss experienced by athletes was also influenced by potential loss of physical fitness and conditioning following injury. Typically, this was reported as a frustrating experience for athletes as they realised they were not at the same physical and technical standard as they were pre-injury. This was outlined by one athlete, "I'd lost fitness, I'd lost strength, speed, pretty much all of the useful attributes you need in rugby." (Evans et al., 2012, p. 923). Finally, athletes also reported the loss of relationships within the sporting environment, causing them to feel lonely.

You don't feel a part of it as much. You're not in the match-day things, and that's probably what you miss, you just feel a little bit weird, especially for the first couple of weeks when you're not training with the main group and you're doing your own thing and yeah doing rehab all the time, it is a bit of a lonely experience. (Ruddock-Hudson et al., 2012, p. 382)

This sense of isolation was often prompted by feeling detached from the sporting environment and being away from teammates and/or friends. For some athletes, being injured caused a temporary separation from the sporting environment which prompted a sense that they were not part of the team, their club and/or that their coaches had no interest in them. These feelings were described by one athlete:

I did my knee and was out for the year. There weren't any other long-term injured guys at the time so I had to go through rehab [rehabilitation] on my own. It was devastating and it took me a while to get my head right. There were times when I didn't want to be here and didn't feel part of the team. Looking back now, I would describe the process as an emotional rollercoaster ride! There were so many ups and downs! (Ruddock-Hudson et al., 2012, p. 380)

Overall, these five underlying properties presented in the literature indicate that responses to injury may be influenced by a range of factors surrounding both the injury and the injury environment. Yet it is also pertinent to highlight that while these properties are presented separately for clarity, an athlete is likely to experience these in combination.

### *Navigating the rehabilitation process*

Within this meta-study 44 articles provided insight into the rehabilitation process. In particular, these articles focused on factors that may assist athletes in navigating the rehabilitation process, including access to medical support, the nature of the rehabilitation process, physical progress and testing of the injury, and the need to be confident, patient and motivated throughout their rehabilitation.

Access to medical support included regular access to medical practitioners as well as good medical facilities. In particular, participants highlighted the importance of regular contact with practitioners. "There was a period when I was seeing her [physiotherapist] every week or 2 weeks, and therefore each time I went back she would reinforce the exercises" (Marshall, Donovan-Hall, & Ryall, 2012, p. 23). This regular contact offered athletes the opportunity to obtain regular feedback and advice, ensuring that they utilised the correct technique.

Despite positive experience of regular contact, the working style and expectations of medical practitioners were reported as a barrier to progress in rehabilitation. In particular, athletes described the lack of congruence between their own rehabilitation



expectations and the expectations of their practitioners. Typically, a lack of congruence stemmed from experiencing difficulties with the practitioner's style of support. This style of support included the level of help offered during sessions, bedside mannerisms, and their reliance on medication. For example, one athlete highlight that the one physiotherapist's treatment "was causing so much more pain...I think he was damaging me more" (Pike, 2005, p. 208) while another highlighted their dissatisfaction with a practitioner who relied on drug prescriptions to eliminate symptoms: "found it difficult to get a doctor to diagnose my back injury – 5 months later it still hurts and I would like to know for sure whether I'm causing permanent damage – doctors just say "rest and take Ibuprofen" (Pike, 2005, p. 207). Athletes who experienced a lack of congruency described the resultant impact on their adherence with some even discontinuing their rehabilitation sessions:

Yeah, but I sort of stopped going there because I could do those exercises at home. But I think I could have gone on until the surgery in February. But I stopped going there. I just stood there, and it was so impersonal, and it was up to myself anyway. It wasn't because the physiotherapist was keeping an eye on people, but sometimes he would say something to you, if there weren't that many people. Then he might say, 'Be careful with that, or you look unsure when you do that', or something. But otherwise it was like, you were just told that if it hurts, then don't do it. Or if you're not sure then don't push yourself just because the others can do it. That's something they emphasised a lot. But it was up to me. (Thing, 2005, p. 188)

The ability to successfully navigate the rehabilitation process was also influenced by the rehabilitation environment "...good facilities while you're rehabilitating, surely can only be a positive thing" (Podlog, Banham, Wadey, & Hanton, 2015, p. 9). Yet while athletes most often reported positive experiences of medical facilities, the use of equipment or exercises to be performed could not always be replicated at home. "I did no exercises at home. I strictly went to the physio to do them and then forgot about it for the rest of the times, which I don't know how good that is...He had all the equipment" (Pizzari, McBurney, Taylor, & Feller, 2002, p.96). Athletes also placed value on rehabilitation programs that were structured, emphasising that this assisted them in setting goals and promoting their adherence to rehabilitation. This was exemplified by one athlete:

When you're injured and if you're feeling frustrated, it's very hard to see the end of the injury and getting back into sport. I set myself little goals to achieve throughout my rehabilitation. They provided an indication that I was getting better; a light at the end of the tunnel. They lift your spirit a bit. It also helped that I started some knee classes at the hospital with certain levels. I couldn't do twisting and turning, so I did straight line and static exercises for my knee. They would ask, 'Are you feeling any pain?' and 'Do you feel strong?' You work together [with the physiotherapists] to determine whether you should go to the next level... They [physiotherapists] knew where I should be and where I shouldn't be. Six weeks on you should be able to do this. Yep, I can do that. Eight weeks on you should be able to do this. Yep, I can do that. And during rehabilitation because you're achieving things, you become more confident and less dispirited. (Wadey et al., 2012, p. 888)

The above quotation highlights that the structured nature of the rehabilitation environment may provide achievable and realistic goals for returning to sport. Furthermore, participants also described that regular contact with medical practitioners served to reinforce these goals. Yet for some athletes the repetitive nature of the rehabilitation process proved difficult. As one athlete reported:

I didn't go for rehabilitation for about one month. I don't know why, I'm fed up. I feel bored doing the same thing again and again. Most of the days I was training, resting, and training again; that's all. I was not doing anything at all. (Roy, Mokhtar, Karim, & Mohanan, 2015, p. 3)

In line with the above quotation, successful rehabilitation was most often determined by visible or noticeable improvements in the injury. Markers of progress often led to positive emotions and optimism regarding the rehabilitation process:

I got back feeling positive. I was feeling a little flat probably the first few days when I was in hospital, and in the weeks following. But then I could see that I could do the majority of things and my rehab [rehabilitation] was coming along well, so I found the positives out of it. (Ruddock-Hudson et al., 2012, p. 383)

As Allen-Collinson and Hockey (2001) reported in their autoethnography “The past was a yardstick against which the present was measured, for whenever progress faltered or halted” (p. 29). Yet while physical progress and comparisons to earlier rehabilitation experiences were perceived positively by athletes, such a unidimensional concept of rehabilitation progress demonstrates a narrow perspective of recovery. Whilst there is no doubt that the physical markers of recovery are important, placing emphasis on only these aspects ignores important psychological and social aspects of recovery.

For athletes, the emphasis on physical improvements not only included overall improvement of the injury but also more specific changes including improvements in basic movements (e.g., walking, running and jumping), components of fitness (e.g., flexibility, strength), regaining match fitness and physical appearance of the injury. These changes were summarised by one athlete in Thing (2006):

So then after some months I’m able to run down the side of the court. Just being able to jog along. I mean that was a GIGANTIC achievement, it meant SO much to me to be allowed to feel that you were running instead of walking. I mean that was a step that I can’t, that I just can’t explain. That people just don’t understand unless they’ve tried just that – being allowed to run again. (p. 368)

As athletes progressed through rehabilitation the emphasis changed from activities that promoted an active rehabilitation to assessing whether the injury had healed to a suitable level and that they were ready to return to full competition. This was often signaled through the confirmation of medical clearance, which was as one athlete described it “...an energizing uplifting thing when you hear you can go back. It’s like getting out of jail. All right, I’m on parole!” (Bianco et al., 1999, p. 164). This notion of elation was further mirrored by a number of other studies, with athletes reporting that it was “exciting to get back” (Clement, Arvinen-Barrow, & Fetty, 2015, p. 100) and how they couldn’t “...wait to get out there [training and competing]. I’m so excited to be back in the team!” (Ruddock-Hudson, O’Halloran, & Murphy, 2014, p. 285).

Even though athletes were often excited about returning to competition they reported that the initial testing of the injury provided a useful source of information to confirm whether their rehabilitation had been successful. For athletes the ability to perform the skill that caused the injury or complete demanding training sessions was interpreted as a positive marker for returning to sport. For example, Allen-Collinson and

Hockey (2001) highlighted the tentative but also optimistic process they found themselves facing “Eventually, on weekends we managed to test out the knees on local hills, at first with trepidation and then later with developing optimism” (p. 28).

Although physical progress in the rehabilitation process was viewed as a marker of success, where athletes failed to make this progress this often led to lower motivation and self-doubts. For example, “You do feel a bit stupid’ cause I really couldn’t get some simple things, some simple exercises” (Marshall et al., 2012, p. 21), “I didn’t think I was going to make it.” (Clement et al., 2015, p. 99) and “I rarely did my rehab exercises at home because I didn’t have a clue if I was doing them correctly or not...in some instances my ankle felt very sore which put doubt in my mind.” (Levy, Polman, Nicholls, & Merchant, 2009, p. 219). In particular, athletes highlighted the frustrations associated with performing movements deemed to be simple pre-injury and the concerns associated with experiencing pain in rehabilitation. Alongside these difficulties athletes also reported that physical setbacks during rehabilitation were perceived as a barrier to adherence and motivation: “You’re there and you’re psyched, but you just go fast so fast. You’re doing these little things that you can’t see any benefit from. It’s really discouraging. It’s really hard to do a quality job and stay focused everyday.” (Bianco et al., 1999, p. 162). Often these physical setbacks resulted from impatience and a desire to return to sport:

I didn’t cope with my injury very well at all. Being injured is the worst thing ever. At the start I was so angry, rehabilitation was slow and I was in pain for so long; I got so bored of being injured and missed playing so much, I went back a few weeks earlier than the physiotherapist said but I thought I would be fine. But, I got re-injured and now need an operation on my knee. (Salim et al., 2015, p. 23)

I am quite impatient and I progressed onto jogging probably a little quicker than I maybe should have done because of wanting to get back [to competitive sport]. I think that actually slowed down my recovery. (Wadey et al., 2012, p. 887).

As the above quotations highlight, physical setbacks were most often apparent in athletes who pushed their bodies before being ready to return to sport. Yet the consequences of this desire to return to sport was not only shown to be physical but also psychological, impacting on motivation to continue rehabilitation.

Such actions demonstrate the dangers of returning to sport too soon and expecting progress to be constant and linear. Yet such expectations may also be difficult to manage, particularly during a lengthy rehabilitation process. The notion of being away from their sport for extended periods of time was often a difficult prospect for athletes to cope with. As one athlete described: “It was difficult for me to understand that it was so big, if you know what I mean. And that it would take such a long time.” (Heijne, Axelsson, Werner, & Biguet, 2008, p. 320). Furthermore, the sudden availability of time presented further challenges to athletes:

It has made a big difference, of course, first of all in terms of time that you have a lot of time to spare than you’ve had before. For 15 years when you always had something to do on Tuesdays and Thursdays, Sundays and training weekends. All of a sudden you have nothing to do, so you’ve had to find other things somehow and you’ve seen, well, but then I must be happy that I can do other things or see other people than I would normally see. But you miss the sport, you miss dropping by the club for a chat, you don’t do that in the same way when you don’t see people, I mean, so of course you miss that a lot. (Thing, 2006, p. 371)

Alternatively, the demands of extra rehabilitation sessions also required athletes to readily sacrifice available time to prioritise their rehabilitation:

I didn’t believe I could do my rehab program at the centre, particularly when you have been working all day. It was like trying to juggle an extra ball, all of a sudden you feel that all your time is taken up by work and coming here [the rehabilitation centre]... I had no time for myself anymore. (Levy et al., 2009, p. 219)

Given the often-lengthy nature of the rehabilitation process athletes reported the need to be confident, patient and motivated throughout their rehabilitation. Of these three characteristics, confidence was most prominent in the literature, particularly during the later stages of their injury experience. Specifically, athletes described the need to have confidence in the injured body part, their own performance/ability, their own ability to cope, and in the direction/return of their rehabilitation. The main source of this confidence was from the physical improvements during the rehabilitation process:

I did everything they [physiotherapists] said; having rest when I needed rest, not doing too much, and taking my time and doing it [rehabilitation programme] thoroughly. And because I wasn't feeling any pain [in my hip], I gained a lot of confidence. This was at the end of my rehabilitation. It gave me the confidence that my hip had recovered and that I could return to lacrosse. (Wadey et al., 2012, p. 889)

Having patience was also reported as being facilitative for rehabilitation as it enabled a realistic outlook which prevented athletes returning to sport before being physically ready. According to one athlete “just being patient, wanting to do it [return to sport] but being realistic and saying you can't do it...” (Podlog et al., 2015, p. 2015) helped them ensure they were ready to return to sport. Alongside this, athletes also reported a need to be motivated during their rehabilitation. Typically, this conversed thought phrases such as “we ‘zeroed in’ on the week’s end—that was the far horizon” (Allen-Collinson, 2003, p. 345), “properly and thoroughly” (Evans & Hardy, 2002, p. 324) and “being totally focused within the gym” (Gould, Udry, Bridges, & Beck, 1997b, p. 386).

### ***Coping with injury***

Throughout the injury process athletes reported using numerous strategies to help them cope with injury, as well as to enhance their recovery from injury. In total, the use of at least one coping strategy was reported across 36 of the studies reviewed. These strategies focused on applying psychological skills (imagery, goal setting, cognitive reframing and positive self-talk), utilising stories and memories from the past, religion, through physical tasks and props, avoidance strategies and by maintaining a positive focus.

One of the most frequently reported coping strategies was goal setting which was suggested to help reassure athletes about their progress and motivate them towards their desired goals. Typically, these goals were either set by the athletes themselves, their coach or the medical team supporting them. The application of goal setting was clearly highlighted by one athlete, taken from Evans and Hardy (2002)

I'd work towards bending the leg another five degrees, say every week or two weeks... I'd set short-term realistic goals, rather than goals that are going to be achieved in a couple of months, goals that I could achieve by the end of the week so I had something to work for. (p. 323)

Similarly, an athlete in Podlog et al. (2015) highlighted:

...the perception that you can't just go back to where you left off... there's a gradual build up, there's a gradual progression that leads you into that development from rehab into ultimately performing and then eventually back to where you were, if not beyond where you were before. (p. 8)

Both quotations highlight the effectiveness of setting short-term goals in order to maintain motivation during injury. Athletes reported that getting confirmation of reaching or getting close to their goals provided them with an update of how they were progressing in the rehabilitation process as well as how the injured body part was holding up (Heijne et al., 2008).

Visualisation was also frequently reported by athletes as a tool to help them prepare for their return to sport and/or as a tool to imagine the injured body part being healthy again: "That's an external picture, I see myself from the outside or standing next to me, lying on a table, extending my arm fully to what my other shoulder can do" (Vergeer, 2006, p. 105). Further athletes also sporadically reported using cognitive reframing and positive self-talk. As one athlete reported, they reframed their focus from setbacks onto their goals: "If there is a setback, what's done is done. I guess you just have to look forward and just concentrate on where I want to be and how to get there." (Mankad et al., 2009 p. 9). In a similar vein, athletes also reported drawing on their religious beliefs and "viewing [their] experience from God's perspective" to provide hope and motivation (Grindstaff et al., 2010, p. 130).

A further coping strategy suggested by athletes was to draw from their own stories and memories as a means of motivation. Hockey (2005) demonstrates the application of this strategy:

Last week on the way back home from giving conference papers, we got trapped on a very small, and very crowded train, which remained stationary for 7 hours due to technical problems. Our knees reacted really badly to being in such cramped conditions. The result is we have had to go back to fast walking from where we were (walking and trotting). We are VERY pissed off! Today over a cup of tea, I tell J. a runner's tale of when I ran the Three Peaks Race (22 miles over three fells, each around 2,000 feet). Coming down the second descent, I stumbled over and broke my glasses. I

then ran down the last descent to the finish hardly being able to see the path. She tells me that was idiotic, a truly mad thing to do. I wink at her and say: “I finished didn’t I!” Sociologically I know what this is really about, it’s about us not giving up in the face of setbacks to the knees. (p. 49)

This quotation demonstrates the powerful impact that storytelling can have for the injured athlete, providing anecdotes and motivational messages of time when they have overcome previous adversity. Athletes also reported undertaking actions that empowered them and helped them to cope with the physical nature of their injury. These included mapping their own paths to recovery (Allen-Collinson & Hockey, 2001), undertaking physical tasks (e.g., going on a bike ride; Gould et al., 1997b), testing their injury (Johnston & Carroll, 1998) and taping or wearing a brace to protect the injury. For example, “I’ve worn a sleeve over my knee since I’ve been back. I don’t think it does much physiologically but it just reassures me. Keeps me from thinking I might injure my knee again” (Carson & Polman, 2012, p. 38). Furthermore, attempting to take control of the injured body and was also seen as a necessary part of learning to cope with their injury. For example, “I never know how I am going to feel from day to day. I have become a medical master of my own being.” (Fisette, 2015, p. 78)

Many injured athletes also described the use of avoidance coping strategies, often describing their mental disengagement from sport. This included avoiding the team and/or training environment, avoiding thinking about the injury and keeping busy. For one athlete engaging with the sport environment was highly emotional:

I couldn’t do anything, I hated being there and not being able to play, so I stopped going to training as much. I didn’t go out with them or anything because I felt left out of it because I wasn’t there...especially after road-trips because everyone has all the gossip on road-trips and then you don’t know anything, so then you’re like...“Oh.” (Mankad et al., 2009, p. 7)

For others, simply engaging in everyday tasks to distract them from sport such as “going out more socially”, “enrolling in school”, going on holiday and/or keeping their mind occupied was sufficient (Gould et al., 1997b; Mankad et al., 2009; Wadey et al., 2012).

Athletes also reported that in order to cope they aimed to maintain a positive focus, not only about their injury but also their return to sport. This was portrayed in statements such as “been through it before - so here we go again”, “pretty upbeat - kept good



attitude”, “every day I am so grateful that I can move my body and exercise in ways I have not in years” and “I had confidence and believed in myself” (Dashper, 2013; Gould et al., 1997b). This positive attitude was also reflected in the desire to succeed and return to sport, a passion for the sport and a desire to see what could still be achieved. This was outlined by one athlete from Ruddock-Hudson et al. (2014):

I think an underlying factor in all this is that I suppose it’s getting my hunger back to play footy; it’s making me think about it more. When I was playing I suppose I didn’t realise what I had until I lost it, and now that I can’t play, I just sit there and think...I just want to play. (p. 282)

### ***Social support***

It has been well documented that an athlete’s perception of their sports network can help or hinder recovery from injury. It is therefore not surprising that aspects related to social support were reported in 37 of the articles reviewed within this meta-study. Social support can be provided from a wide range of sources. Within this meta-study five distinct sources of social support were identified: (a) family and friends (including family, friends, partners and boyfriend/girlfriends), (b) other athletes (including teammates, other injured and retired athletes), (c) medical/support team (including physiotherapist, medical staff and doctors), (d) specific sporting staff/management (including administrators and coaches), and (e) other (including other patients, public figures).

Athletes reported receiving a range of types of support. The most prevalent support was emotional support. Typically, emotional support included recognising that others cared for the injured athlete, accepting encouragement, motivation and reassurance from others, and being provided with the opportunity to talk about their injury. Athletes reported that members of their sport networks typically showed they cared by showing an interest in the progress they were making in their recovery and by inquiring about their general welfare and wellbeing:

I felt really good when my friend [who had the same operation] said, “Every time I make some progress I feel like I go back five steps before I go forwards again.” So that has been good because that is how I have felt a few times, when I would overdo it and set myself back and I was really pleased to hear him say that because it made me realize that I wasn’t doing anything drastically wrong and I wasn’t ever going to get better...It’s good knowing

that people do care. (Ford & Gordon, 1991, p. 251)

Further, this emotional support also allowed the injured athlete to talk about their injury with others: “When you’re seriously injured with others, they go through the same sort of thing, so we can sit and bitch about it together and drown our sorrows or whatever.” (Ruddock-Hudson et al., 2012, p. 383). While athletes with previous injuries of a similar severity were able to offer empathy, medical staff were also a source of emotional support providing reassurance about the physical progress of the injury. As one athlete expressed: “[The physiotherapist] was really reassuring. He actually noticed I was a bit nervous and pulled me aside to say how well I’d rehabbed and that the testing we’d gone through was more intense than what I would experience” (Carson & Polman, 2012, p. 38). Thus, emotional support may be provided by a range of sources yet was often reliant on others to notice that this support was needed. In line with this, some athletes reported that members of their sports network sometimes failed to show a sufficient level of emotional support. For example, as one athlete emphasised when describing her experience with her coach: “I actually lost a little respect for her. She did not show me a lot of confidence. I think it just made me see a different side of my coach, that she wasn’t all that supportive of my injury” (Granito, 2002, p. 249).

Instructional support was also deemed to be important, including clarifying instructions, specific task support and the offering of advice and receipt of feedback. The instructional support perceived from clarifying instructions, focused on ensuring athletes understood the rationale for treatment, rehabilitation protocols and treatment techniques. As one athlete expressed: “My ‘team’ of physiotherapists were excellent in allowing time to explain the relevance of difference exercise schedules to me” (Gordon & Lindgren, 1990, p. 73). In particular, the value of this instructional support was often demonstrated when this support was perceived to be individualised and specific to the injured athlete:

Performing the rehab exercises can be demanding physically and emotionally... So to have found a physio who was very supportive was very comforting and reassuring. The physio provided good guidance and frequent feedback about how well I was doing; he seemed to have a lot of time for me in the clinic and had taken a keen interest... This made me feel valued. He wanted me to get better and this came across well. It is because of this that I didn’t want to let him [the physio] down. (Levy et al., 2009, p. 220)

Unsurprisingly, a lack of instructional support was perceived as detrimental by athletes: “I don’t really think I got a full rationale, in terms of saying if you do this, this will work on improving certain muscle areas...Didn’t really get that kind of explanation at all” (Marshall et al., 2012, p. 21). Furthermore, where instructional support was not specific to the individual, athletes reported feeling unsupported and ignored: “We have a rule now: If you’re injured and you’re not swimming then you just kinda stay away from the team.” (Abgarob, Jeffery-Tosoni, Baker, & Fraser-Thomas, 2012, p. 220).

The final type of support reported was tangible support. Typically, this included gaining support with tasks that were difficult to complete when injured such as everyday tasks, travelling to medical appointments and enabling mobility. This was summarised by an athlete in Ford and Gordon (1999):

My wife and family helped a lot at the start [when my leg was in a brace that restricted my mobility]...My wife has sort of looked after me and helped me out a fair bit...I have had plenty of offers, people saying if you need to go anywhere just ring us, we’ll give you a lift. One of my teammates, in the initial stage, would pick me up...that was a big help...knowing that it’s not a worry about having to organize taxis or ring someone to organize a lift...having those offers is magnificent. (p. 251)

Similarly, those within the sports network were able to demonstrate their support for the injured athlete through their tangible assistance:

He [the athletic trainer] keeps in touch...he was a big motivator...he was really good about pushing the administration to keep supporting me...He has kept in touch with me from the beginning. He brought me to the hospital the first time...he was a big help. (Gould et al., 1997b, p. 390).

While the positive benefits of social support are clear, the fragility of relationships built with injured athletes should be carefully considered. Several athletes throughout this meta-study reported mis-trusting support providers, particularly those within medical professions. For example, quotes drawn from Pike (2005) highlight how one doctor’s actions undermined the athlete’s trust. Firstly, describing the competency of the practitioner, the “hospital managed to get my files muddled up between my shoulder injury and my knee injury” (p.207) and secondly through the time spent with the athlete, “he could not have been there for more than 20 seconds. He didn’t even look at me or

anything” (p. 207). Medical practitioners were also further criticised by athletes for not having sport specific knowledge, for example “[who] didn’t know anything about sport injuries” (Pike, 2005, p.207) and similarly, “[My] family doctor is too general to even know what he is talking about, so he is pointless to go to” (Abgarov et al., 2012, p. 225). For athletes, a specific sport understanding contributes to the level of trust and confidence they perceive in support providers. A point summarised by athletes within Gould et al., (1997b):

You (injured athlete's) have got to get somebody that works with you...and knows that you're not just an every day, average person...you have to do a lot more than the average person and they have to be willing to give you their support with that as well. (p.391)

### ***Benefits of sport injury***

For the most part, research has typically focused on the negative psychological consequences associated with injury. Yet as Wadey, Evans, Evans, and Mitchell (2011) have highlighted, athletic injury may also provide the opportunity for growth and development. The potential opportunities for growth were initially identified in research examining overall experiences of injury. More recently, however, there has been an emergence of research that has specifically focused on growth related experiences during and after injury. While this is an emerging research area, 19 studies reported at least one benefit of the injury process. Injury was often described as a learning process during which athletes may have the potential to grow and develop in a number of ways. As one participant expressed:

There are a lot of lessons you can learn. You learn a lot about yourself and how you deal with a critical period that you not necessarily have expected to happen. You learn about your character and how strong you are and how willing you are to work hard to regain the physical stamina that you had before. Although being injured is not a lot of fun, you definitely learn a lot from it. It’s a positive experience, not a negative experience. (Bianco et al., 1999, p. 165)

There were three types of growth reported within the 21 studies: personal growth, sport-related growth, and social-growth.

### *Personal growth*

Personal growth is defined as the emotional, mental or spiritual development that occurs as a result of the injury process. Within the literature, personal growth included: the opportunity to reflect and evaluate life, improved character development, learning to be more positive, improved resilience and mental toughness and other forms of personal growth. For those athletes who saw their injury as an opportunity to reflect and evaluate life, injury offered them time to put things into perspective, reflect on their priorities, appreciate what they have and provided the opportunity for a balanced lifestyle. This is summarised by one athlete who expressed:

[The injury] started to make me think. I was already going to start making compromises in my life anyway, and it made me re-evaluate what it means to do this activity. Yes, it was important to me. It was very clear that running is very important to me, but it's not the only thing. There are other things out there that I draw similar satisfaction from. (Rose & Jevne, 1993, p. 321)

Athletes also reported that the injury process promoted improvement in their character. This included enhanced empathy, becoming a more caring and unselfish person and learning patience. For example:

It's kind of funny because it really opened my eyes a lot. After I was hurt, I tried to be sure to write those girls [injured teammates] letters and faxes and whatever to be sure that they knew I was thinking about them and can't wait for them to get better and come back. (Udry et al., 1997, p. 241)

For others, progressing through the injury process prompted the development of a more positive attitude to life and/or an improved level of resilience. As one athlete expressed:

I think it [injury] has made me a tougher person. I used to think I've got an injury, it's the end of the world! Now, if I get injured, I will just get on with it. Just get on with the rehabilitation and just have a more positive outlook on injury. (Wadey et al., 2011, p. 153)

Athletes also described their own self-improvement, which included improved time management, an opportunity to improve academic study and pursue musical interests. For some athletes sustaining an injury enabled them to improve their time management skill and become "better managers of time" and "learn...to meet deadlines better" (Udry et al.,

1997, p. 242). Whilst others reported that during gaps in their daily timetable (which would previously have been spent at training) they were able to spend time on academic work and musical interests, ultimately improving both their academic and musical abilities:

Study did drop off initially because I was just too tired all the time. I couldn't sit down at the computer for very long, if at all, and do any work...now I have had more time to do assignments. (Ford & Gordon, 1999, p. 250).

### *Sport-related growth*

Sport-related growth is defined as the sport specific components (e.g., tactical, physical, technical, psychological) developed as a result of the injury process. Sport-related growth included: improvements in sport-related areas and learning about the body. For athletes who reported benefiting from improvements in sports-related areas, these benefits included improved nutrition, a greater tactical awareness improved technical ability and improved fitness. For example, two athletes described in Wadey et al. (2011): "It's [increased weight through injury] improved my diet. I had to read about nutrition to learn about what I was eating and what effect it was having on me" (p. 151) and "I would say it [watching games] improved my knowledge of positional play, but also improved my game awareness as to what other people will be thinking in different positions and what they are expecting from you" (p. 151).

Athlete's also reported learning about their own body as beneficial to their sporting development. This included an increased understanding of their injury and potential risk factors, understanding their physical limits and an increased knowledge of the body (e.g., emotions, anatomy). As one athlete noted in Wadey et al. (2011):

I understand the components of the knee pretty well. I could probably write a rehabilitation program now, even though I haven't got a medical degree! I also understand training aspects to reduce the likelihood of injury a lot better, because I took the time to do some research into what I need to do to strengthen the areas that I am weak in. (p.148)

### *Social growth*

Social growth was defined as the social opportunities and relationships that developed as a result of the injury process. Athletes reported improvements in existing social relationships, for example, through statements such as "time for relationship with

boyfriend” (Udry et al., 1997, p. 241) and “socializing more with friends and family” (Ford & Gordon, 1999, p. 252). As well as the opportunity to develop new social relationships. More specifically, athletes reported that the time away from sport, as a result of the injury, enabled them to spend more time with their friends and family and ultimately improve these social relationships. For example:

Before my injury I had an awful relationship with my mum, we couldn’t be in the room with one another without arguing! My mum helped me so much throughout my injury, even with things like putting my socks on and helping me to the bathroom. I realized how good she was to me during my worst time, and I appreciate her far more now, which has brought us so much closer. We now spend a lot of time together, respect each other more and I do my best to help her out around the house. (Salim et al., 2015, p. 22).

While a number of studies described this as an element of growth, few included detailed or rich descriptions which outlined how social growth occurred.

### **4.3 Overall Synthesis Conclusions**

The past three decades of qualitative injury literature offers a myriad of valuable insights into the injury process. This meta-synthesis provides the first review of this extensive body of qualitative literature, thereby providing an original resource that demonstrates the complexity of the injury experience by outlining the overall themes from 54 published manuscripts (see Appendix C for a summary of the themes and the papers in which they were found).

#### **4.3.1 Using the research insights**

Understandably, SIRPs often place the athlete’s physical injury at the centre of the experience. Yet such a perspective may be representative of a medical model of care, centred on fixing the damaged body, rather than the call for practice to evolve and adapt to include a more holistic or biopsychosocial approach to rehabilitation (Driver et al., 2019). While the importance of rehabilitating the physical injury is not to be overlooked, focusing solely on the physical aspects of injury negates to consider the individual and the wider context in which the athlete is situated. Put simply, sport injury does not occur in a vacuum but is contextually specific to each athlete. Consequently, to ensure a rounded

rehabilitation educational tool can be developed it is imperative to consider the influence of the individual athlete and the numerous contextual factors in each injury situation.

Drawing on the insights offered by this synthesis, seven areas of focus are identified as being important in understanding the psychosocial aspects of sport injury. Table six provides a summary of these seven areas of focus. It is also important to note that while each theme has been separated to clearly present the data available, it is valuable to consider the integration between these themes. For example, the sporting culture may encourage athletes hide their injury, in turn this may have a subsequent impact on an athlete's help seeking behaviours (e.g. withholding information) and selections of coping strategies (e.g. taking medication to mask the pain).

For this thesis, it is also important to consider how these themes may extend SIRPs understanding of the psychological aspects of injury. First, previous literature suggested that SIRPs should be educated in areas such as interpersonal communication and positive self-talk (Heaney et al., 2015). However, this synthesis demonstrates a wealth of alternative topics that may be used to inform evidence-based practice. For example, the pressures experienced by athletes to play through pain and the impact of injury on athletic identity. Such topics do not typically form part of mental skills training for SIRPs (e.g. Clement & Shannon, 2009; Harris et al., 2005; Heaney et al., 2017; Stiller-Ostrowski et al., 2009), but would provide SIRPs with a more rounded understanding of the athlete injury experience. Similarly, this synthesis also demonstrates that while psychological skills (e.g., imagery, goals setting) are important coping strategies, there is again a wider range of topics to consider. For example, the benefits athletes may experience from sustaining an injury, the influence of culture on an athlete's injury experience, how athletes actively cope with their injuries, to name but a few. It may therefore be suggested, that even where SIRPs are receiving training on the psychosocial aspects of injury, the breadth of topics covered does not represent the available literature.



**Table. 6***Areas of Educational Focus*

Areas of Focus	Specific Educational Content
Injury Culture	Normalisation of pain Acceptance of risk Pressures athletes experience to play through pain and injury Culture of blame
Athletic Identity	Fragmented athletic identity Restoring and reclaiming the fragmented self
Underlying Factors Underpinning Response to Injury	Emotions experienced by athletes Timing of the injury Uncertainty surrounding the injury Athletes security of role and position within the team Impact on athlete's future Loss athletes experience
Navigating the Rehabilitation Process	Access to medical support Nature of the rehabilitation process Physical progress and testing of the injury Having confidence Being patient Motivation
Coping with Injury	Athletes use of psychological skills Use of stories and memories from the past Religion Use of physical tasks and props Avoidance strategies athletes use How athletes maintain a positive focus
Social Support	Sources of athlete social support Emotional support Instructional support Tangible support Fragility of social support
Benefits of Sport Injury	Personal growth Sport-related growth Socially-related growth

Second, while the meta-synthesis enhances our understanding of these topics it is important to consider how this new knowledge gained may be applied to SIRPs, working within the boundaries of their competencies. At an individual or intrapersonal level, it is important for SIRPs to be aware of the numerous personal factors that may impact on an athlete's recovery. For some athletes, these individual factors are a result of resources available, (e.g., access to medical support) but predominantly, individual factors are represented by characteristics of the athlete (e.g., motivation, patience, confidence, emotional response, athletic identity). Understanding injury at an individual level may help SIRPs to consider asking about these factors during an initial intake or throughout the injury process.

At an interpersonal level, the meta-synthesis demonstrates the importance of relationships with others for the injured athlete. Understanding these interpersonal factors might assist SIRPs in considering their own role and work with the injured athlete. For example, the theme of coping with injury highlighted the importance of storytelling in injury, a listening and encouraging role that could be taken up by SIRPs during their consultations. Further, navigating the rehabilitation process illustrates the role played by SIRPs in enhancing confidence, particularly through the idea of providing clear instructions, facilitating achievable but realistic goals for returning to sport and using markers of progress as means to promote optimism and positive emotions. More importantly, the meta-synthesis also helps to highlight the importance of personal, social, and sport growth, an essential construct that SIRPs are well placed to help facilitate.

It is also important for SIRPs to acknowledge the potential disruptive impact of other relationships in the sport network. For example, the theme of social support demonstrated the fragility of relationships built with injured athletes, specifically how a practitioner's actions, knowledge and intent can cause athletes to mis-trust practitioners. Understanding of potential relationship disruptions may again prompt SIRPs to ask about others, both during initial assessment or throughout the rehabilitation process. Such suggestions are in line with Kolt (2000), who outlined how one sports trainer became a sounding block for a young gymnast's difficult coach-athlete relationship.

Finally, knowledge gained from the synthesis may provide SIRPs with a better understanding of the environment and cultures surrounding injury. For example, several researchers (Granito, 2002; Grindstaff et al., 2010; Howe, 2001; Young et al., 1994) documented the positive and negative connotations of perceived and received support. Demonstrating how an athlete's sense of self can be impacted by the level of perceived

support received during their injury experience. A lack of understanding surrounding the impact of interindividual influences highlights the potential for conflicts to occur between athletes and support structures. Ultimately, an athlete is supported by many partners, each with their own voice which may result in a crowd of voices influencing the athlete's development and direction. While each sporting environment is unique, understanding these challenges may encourage SIRPs to consider the wider factors impacting an athlete's responses or desires may allow practitioners to identify hidden pressures and tensions an athlete may face while they are injured.

### **4.3.2 Research design and methodology**

The time span of articles represented in this synthesis highlights the overall growth in the number of published articles that have used qualitative research methods to understand the injury experience. This has seen the number of published articles double since 2010 and a continued upwards trend in this growth over the past seven years, which aligns with the recent data published by McGannon et al. (2019) and Poucher, Tammineen, Caron, and Sweet (2019). Not only does this serve to highlight a growing interest in the area, it also illustrates the growth of qualitative methods in understanding the injury process. Although it is important to celebrate this growth, this meta-synthesis also raises some causes for concern and caution.

First of the 54 articles reviewed only 33% of these articles were published in a journal with a scope related to medical, health or rehabilitation. Thus, we might begin to question who is the intended audience of injury research? Such questions are particularly pertinent given considerations outlined in chapter two that healthcare providers such as physiotherapists and sports therapists are often the first point of contact and provide continual support for the injured athlete. Publication in sport specific journals may restrict knowledge dissemination to this wider community of practitioners who may not have access to or awareness of the range of sport psychology journals available.

The results from this meta-study also highlight a prevalence to report knowledge creation rather than knowledge translation. As defined by Graham et al. (2006) and outlined in chapter three, knowledge creation refers to the three dynamic phases (knowledge inquiry, synthesis and creation of tools) that help to refine our developed understanding of the phenomena being investigated. As shown in the meta-synthesis all but one article focused on creating this type of knowledge (e.g., knowledge-for-

understanding or knowledge-for-critical evaluation), with only one article focusing on creating knowledge for translation (e.g., knowledge-for-action). To appropriately advance our understanding of the injury experience and the successful rehabilitation of athlete, research needs to place knowledge translation at the forefront. If we are to ensure we bridge the ‘Valleys of Death’ discussed in chapter three, then a stronger commitment to knowledge translation is vital. Therefore, going forward emphasis needs to be placed on developing meaningful, but actionable research, that include key partners, who support athlete's through injury, to help guide and develop interventions (Graham et al., 2006). Specifically, considerations need to look towards understanding how the broad range of themes interrelate to develop a holistic understanding of the injury experience and how it can be promoted in practice.

To ensure effective knowledge translation research is developed, it is also imperative that careful consideration is given to enhancing the quality and rigour of the research, particularly in terms of maintaining transparency. As Smith and McGannon (2017, p. 2) highlighted “...we cannot be complacent” about the importance of producing quality and rigorous research. Of importance is the need for qualitative researchers to be explicit about their philosophical assumptions as these form the fundamental foundations that each study will be built upon (Avramidis & Smith, 1999). Therefore, it is worthy of concern that only five of the 54 articles explicitly outlined their philosophical assumptions, and of those five, only two articles reported both their ontological and epistemological assumptions. Interestingly, similar concerns were highlighted by Culver, Gilbert, and Sparkes (2012) who reported that only 13.7% of articles reviewed declared an epistemology. This was supported further in an updated review undertaken by McGannon et al. (2019) who highlighted an increase of 40% of studies declaring their philosophical position. Whilst the number of qualitative articles stating their philosophical position has seen a noticeable increase in the past 30 years (Poucher et al., 2019), further work still needs to be done. As Smith and McGannon (2017, p. 4) highlight “...research methods cannot be divorced from their philosophical undercarriage.” Therefore, the lack of attention to these assumptions is problematic and concerning as they carry important implications, not only for how researched is governed but also how the findings are later interpreted (Avramidis & Smith, 1999; McGannon et al., 2019).

A final consideration regarding the methods used is the dominance of interview-based data collection. Back in 2012, Culver et al. reported that interviews were the most used method of data collection within qualitative research. This trend was further

supported in McGannon et al.'s (2019) updated review, which demonstrated that interviews were used in 85% of studies reviewed. The results of this synthesis show a similar trend. However, in comparison to the results from Culver et al., this synthesis shows an increase in the number of studies that have used multiple interviews (20%) in comparison to 16% reported in Culver et al. Thus, while the one-shot interview remains dominant, the increase in multiple interviews may indicate prolonged engagement with participants within the injury research. However, it is worth highlighting that whilst interviews present an interesting method for collecting participant insights, an over reliance on interviews runs the risk of missing the opportunity to harness alternative methods (McGannon et al., 2019). For example, utilising visual methods, observations, creative non-fiction pieces may contribute to an alternative understanding to athlete experiences of sport injury.

#### **4.4 Summary**

In summary, this chapter has taken the first step in the KTA framework to synthesise the existing qualitative literature and draw together the injury psychology literature. Seven themes were identified from the literature, which when pulled together highlighted a need to consider the holistic aspects of the injury process. Specifically, at an intrapersonal, interpersonal, sporting, and environmental and cultural level of influence. Alongside the theoretical insights, a number of interesting philosophical and methodological insights were also identified. With this in mind, the next chapter will move into the action cycle of the KTA framework. Where attention will focus on identifying and assessing problems and barriers, before identifying how knowledge insights can be adapted to work for SIRPs.



**Chapter Five:**  
**Understanding SIRPs Experiences of Professional  
Development**

## **5.0 Overview**

This chapter builds on the insights gained from chapter four (meta-synthesis) by moving on to the next stage of the KTA framework, which focuses on working to adapt knowledge for the intended audience. Specifically, this is achieved by identifying and assessing potential problems and barriers that SIRPs face when trying to assess knowledge on the psychosocial aspects of sport injury. To facilitate this stage, a survey design was used to understand SIRPs experiences of professional training activities and preferences for future professional training activities.

### **5.1 Introduction**

Chapter two of this thesis outlined that although SIRPs recognise their own role in supporting injured athletes psychologically (e.g., Kampoff et al., 2010; Whashington-Lofgren et al., 2004) they also feel ill-equipped to take-up this role (Clement et al., 2013; Whashington-Lofgren et al., 2004). Yet the results from chapter four (meta-study) demonstrate that there is a wealth of published literature available to inform applied practice on the psychosocial aspects of sport injury. This perhaps indicates that limited consideration has been given to the practical application of these insights and how key stakeholders could benefit from this application (e.g., SIRPs). Consequently, it might be suggested that as a discipline we have fallen into the second Valley of Death (as discussed in chapter two). In order to bridge this valley between knowledge and practice, the second step within the KTA framework is to consider the barriers SIRPs face in accessing essential information. Three potential barriers may be initially suggested that prevent SIRPs from accessing relevant literature. First, as demonstrated in chapter four, research investigating the psychosocial aspects of sports related injury is predominately published in sport and exercise psychology journals. While such publication paths may be intuitively understandable, this publication strategy may restrict access for practitioners who are working with athlete populations but who sit outside of the sport and exercise science research community (e.g., physiotherapists, occupational therapists, policy makers). While this barrier is important to acknowledge and ‘shed light’ on, creating impact and change in strategies of dissemination may take time. Consequently, while this programme of research recommends that authors consider who their audience may be, there is no quick change that can be made to this barrier.

The second barrier revealed in chapter four, is that sports injury research is



predominately translational research, where the focus is on the creation of new knowledge (e.g., articles focusing on knowledge-for-understanding or knowledge-for-critical evaluation), rather than knowledge translation (e.g., articles focusing knowledge-for-action). While not jettisoning the importance of the creation of new knowledge, it is also vital to highlight the value of translating and therefore applying this new knowledge to clinical work. The current focus on the creation of new knowledge over knowledge translation may place greater demand on SIRPs already stretched workload. As highlighted in the literature, SIRPs report having limited time to read and digest research evidence (Haines & Donald, 1998; Straus, Tetroe, & Graham, 2009). Therefore, even if SIRPs can access sport and exercise psychology journals, expecting SIRPs to select and synthesise relevant research insights from the current wealth of publications available may be unfeasible. Not only may essential messages become convoluted by the growing amount of published literature, but SIRPs may have limited time available to undertake such a task.

The final barrier is that effective knowledge translation may also be challenged by the over-reliance on traditional methods of dissemination. The meta-study demonstrated that all but five of the 54 articles reviewed used a realist tale to present the data, yet such presentation of results often follows the assumption that SIRPs possess the necessary skills to appraise and understand the information presented (Grimshaw, Eccles, Lavis, Hill, & Squires, 2012). As Sparkes suggested, the use of realist tales “...renders the majority of such texts as unreadable to all but the smallest of likeminded cognoscenti.” (Sparkes, 2002, p. 29).

This knowledge-to-action gap has been recognised by some authors who have provided educational interventions for SIRPs as outlined in chapter two (e.g., Clement & Shannon, 2009; Heaney et al., 2017; Stiller-Ostrowski et al., 2009). While these studies do indicate that the use of such interventions enhanced psychological knowledge and applied skills in SIRPs, at present there are a number of limitations in this area of research. First, courses were designed to deliver educational content yet most elected to deliver this through traditional face-to-face teaching. Only Heaney et al. (2017) provided innovation in how this content was taught by using an online module. Second, none of the studies considered the needs of participants in course delivery (e.g., timing of course, method of delivery) and offered limited insights in to how this content was taught (e.g., using case studies, lecture slides). Third, none included any information on how their philosophical views impacted either on their research design or how the course was delivered. Finally,

the content of each educational course was based on previous intervention research, rather than any synthesis of the current research landscape. As a consequence, similar topics were often reproduced (e.g., goal setting) while more contemporary topics (e.g. culture) were not included.

Taken together, the insights summarised from the literature (chapter two) and results from the meta-study (chapter four) demonstrate a number of key findings: (a) that practitioners recognise their supportive role when treating injured athletes, (b) that practitioners may face difficulties in accessing information on the psychosocial aspects of injury, (c) that even when such information is accessed the format of this information may be unsuitable and time consuming to read, (d) there is a strong emphasis placed on the creation of knowledge rather than how this knowledge may be applied and (e) where previous research has used educational interventions these are not based on any current synthesis of the literature and do not take into account participant preferences. In line with these suggested challenges for practitioners, the aim of the current study is to explore the gap between the creation of knowledge and how it is translated within the context of sport injury for SIRPs. Consequently, this study will focus on the identification of problems and the identification, review and selection of knowledge elements as per the KTA framework. Specifically this study aims to understand:

1. What previous experience and knowledge do SIRPs have around the psychosocial aspects of sport injury?
2. What barriers do SIRPs face in accessing research driven knowledge around the psychosocial aspects of sport injury.

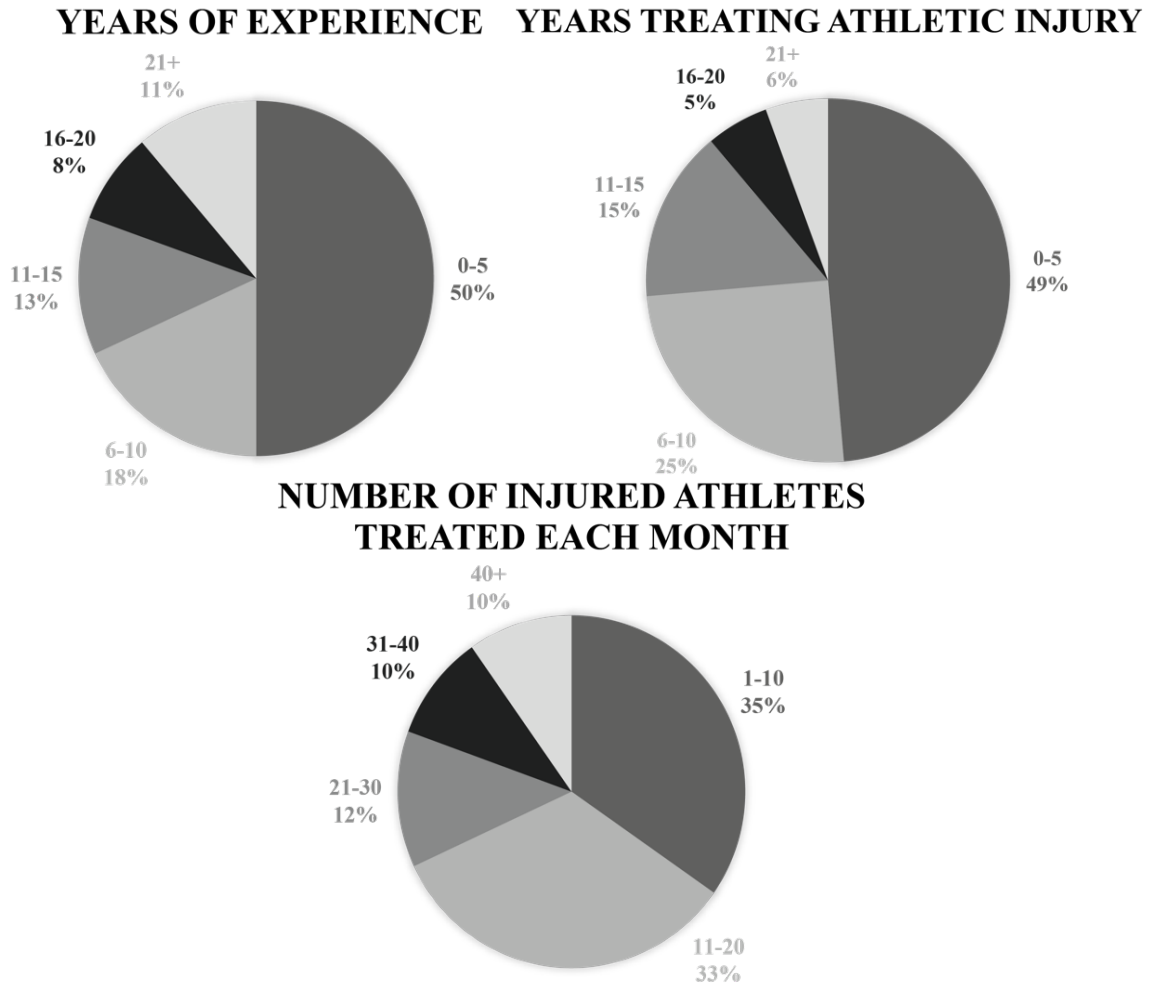
## **5.2 Method**

### **5.2.1 Participants**

Participants were 72 SIRPs (female = 58.3%, male = 41.7%) who were treating athletes with injuries. The number of years practitioners had been treating athletes varied, with the most prominent subset being between 0-5 years (50%). Over half of the respondents reported treating on average between 1-10 athletes (34.7%) or 11-20 athletes (33.3%) each month. Figure seven provides a visual representation of the participant demographics.

**Figure 7.**

*Summary of Participant Demographics*



### 5.2.2 Survey design

An online qualitative survey was developed to examine SIRPs' previous experiences of CPD activities and preferences for how these activities are best delivered in the future. An online qualitative survey was employed as it offered the opportunity to produce rich, varied and insightful data through a medium that was quick and easy for SIRPs to access (Terry & Braun, 2017). The design phase of the qualitative survey included five stages as suggested by Kelley, Clark, Brown, and Sitzia (2003). The first step was to plan the content of the research. This step involved the development of the research questions, considering what information the survey would seek to collect. In addition, this step also involved a literature search that confirmed that there were no existing questionnaires on the suitability of continuing professional development (CPD) activities. Steps two and three then considered the types of questions included in the survey and the questionnaire layout. This involved developing the type and format of questions, ensuring they were

clear and well presented. Emphasis was placed on avoiding ‘double-barreled’ questions (a question that included two or more questions in one) and ensuring that the question was structured in a logical manner. Two critical friends were also used at this point to ensure the usability, readability and functionality of the survey. The resultant survey consisted of 11 questions, which included a combination of open and close-ended questions (see Appendix D for full survey). The first five questions covered topics on personal demographics (gender, practice experience, number of athletes treated) and the remaining six questions focused on professional training preferences (previous CPD experience; preferred CPD content and methods of delivery). Step four, included piloting the questionnaire with a sample of the target population. Appropriate adjustments were made to the original questionnaire following feedback obtained from pilot study participants. The final stage included writing a covering statement that included information on the study, research contact details, aims of the study and a statement of confidentiality.

### **5.2.3 Procedure**

Following institutional ethical approval (see Appendix E) the questionnaire was designed and administered through the commercial service website: [www.esurveycreator.co.uk](http://www.esurveycreator.co.uk). Once the survey had been set up, SIRPs were recruited to this study through two mediums, social media and email. Social media invitations were placed on Twitter, professional Facebook groups (e.g., Sports Therapy Organisation) and online forums (e.g., PhysioForum). Each post was crafted to comply to the specific platform (e.g., remaining within 280-character limit set by Twitter) and included a brief invite to participate and a shorted website (URL) link to the survey. In order to appeal to a wide range of audiences, various iterations of each message were used. These included the use of hashtags (#injury, #practitioner, #athletes, #physio, #CPD), rotating a number of stock images, and alternating the time/day messages were posted. As part of this social media strategy, messages targeting professions and professional organisations were initially posted at various time points across a 48-hour period. After the initial postings, a waiting period of one week was undertaken before a final round of messages were distributed. This timeline was established to encourage uptake and to ensure that the social media channels were not excessively ‘spammed’.

Alongside the use of social media, emails were also directly sent to clinics and

professionals (e.g., physiotherapists, sport therapists, podiatrists) who identified as treating athletes with injuries on their website. Personalised messages were sent to professional clinics and practitioners that appeared on professional online directories (e.g., Physios in Sport, The Society of Sports Therapists, Physio First). Following the initial email, a follow up email was sent out two weeks later. The qualitative survey remained open for nine weeks, at which point the survey was closed. To analyse the data descriptive charts (e.g. frequency charts) were produced to provide an overview of responses. For the qualitative questions, a thematic analysis was used to generate similarities and differences across the data.

### **5.3 Results and Discussion**

The following section outlines and discusses the results of the practitioner survey. This section first focuses on understanding SIRPs previous experience of continuing professional development on the psychosocial aspects of sports injury and second on how future information should be delivered.

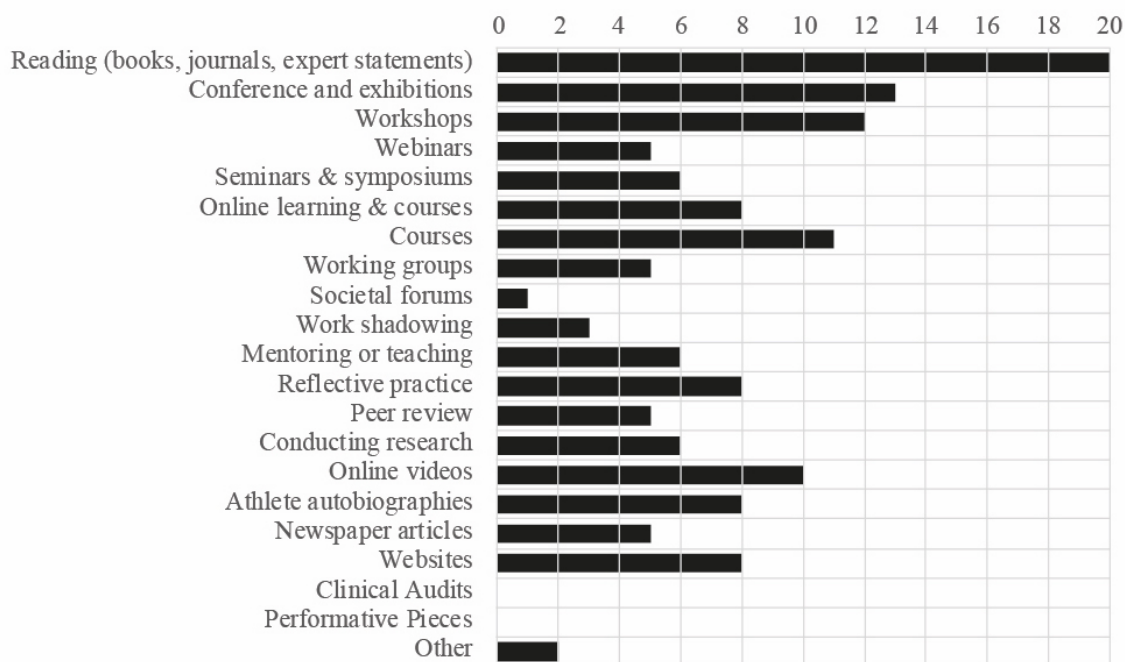
#### **5.3.1 Previous experiences of CPD activities**

Of the total respondents, 56.3% reported previously engaging in a CPD activities that focused on the psychosocial aspects of sport injury. This figure is comparable with previous research that has examined CPD experiences in this population. For example, Kamphoff et al. (2010) suggested 50.6% of their sample engaged in this type of CPD, while Larson et al. (1996) suggested this figure to be 54.1%. Only Heaney et al. (2017) have reported this figure to be much higher at 93%. While organisations such as the SST, CSP, NATA and HCPC all include the requirement to understand the implication of psychological responses to injury, they do not specify that CPD training should be undertaken in this area. Consequently, these uptake figures do indicate a level of interest in this area when SIRPs are given choice over the focus of their CPD training. This level of uptake is promising because as Cormier and Zizzi (2015) and Heaney et al. (2017) highlighted, exposure to training in sport psychology is a significant predictor of a practitioner's accuracy in recognising maladaptive responses to injury and the need to refer clients to a sport psychologist.

To understand SIRPs experiences of previous CPD training, respondents were asked to elaborate on the types of CPD activities they had previously engaged with. Figure eight outlines the frequencies for each of the different training methods.

**Figure 8.**

*The Types of CPD Activities Previously Engaged with on the Psychosocial Aspects of Sport Injury*



These findings highlight the broad range of activities SIRPs may engage in as part of their professional development. The Health and Care Professions Council (2018) clustered CPD activities into four different types. Here, participants demonstrated participating in all of these four types, which include self-directed activities (seven out of the total 20 activities reported), activities that are formal and educational (seven out of the total 20 activities reported), activities that are work-based (five out of 20 activities reported) and professional activities (one out of the total 20 activities reported). These results are promising as it shows that SIRPs draw from multiple types of activities. However, a preference can be observed for more practical activities over traditional methods of delivery, as evidenced by the limited response seen for professional activities, which aligns with insights from the research (e.g., Clement et al., 2013; Heaney, 2006; Lafferty et al., 2008).

Importantly, selecting to engage in a CPD activity does not imply that this activity was valuable for the practitioner. Participants were therefore asked to identify the types

of CPD activities they found useful or not useful, and why this was. Results showed that useful professional training activities were “clear to understand”, presented “easy information” and were accessible due to “ease of access and great when travelling”. While CPD activities considered as not useful were described as “too wordy”, “not based in real world”, “confusing to understand” and “large amounts of information”. In particular, the types of CPD activities associated with traditional presentation style format were not considered useful. These included webinars which were “long and takes a while to gain the information through the chat”, research documents, textbooks, and “complex online journals - confusing to understand”. Such results not only highlight the difficulties that SIRPs have experienced in engaging with traditional academic material but also emphasise the challenges they face in identifying the practical implications of disseminated research. Thus, it is important to carefully consider who our audience is when translating knowledge, ensuring that take home messages are easily accessible, language is pitched at the appropriate level and the method of dissemination is accessible to the audience. Indeed, this consideration is further supported by participant suggestions for useful types of CPD training, included watching YouTube and videos, courses, engaging one-to-one or in group discussions with experts/practitioners/colleagues, podcasts, infographics, and Twitter. In particular these types of professional training activities were suggested to be “quite specific” and proved “easy information at your fingertips”.

### **5.3.2 Proposed content for a newly developed resource**

In order to ascertain participants’ preferences on the content of future CPD activities they were asked whether they would like to see any particular psychosocial topics covered in a CPD resource. Responses were categorised into two themes 1) seeking information on specific topics and 2) practical skills. Table seven outlines the specific information SIRPs requested on specific topics.

As table seven demonstrates, SIRPs responses focused on five main psychosocial topics that they would like to see included in future CPD resources. Several of these topics are discussed in the existing literature and more specifically within chapter four (e.g., coping with injury, loss, athletic culture). Whilst some of these areas of interest are topic based and focus on how SIRPs themselves may be able to help the athlete, SIRPs also sought to understand their referral routes, ethical remit, and professional boundaries.

Thus, in line with the existing literature (e.g., Driver et al., 2019; Heaney et al., 2015) it is important that resources not only develop the knowledge of the practitioner but include when to seek professional help and how to access sport psychology referral networks.

**Table 7.**

*Knowledge Sought by SIRPs on Specific Psychosocial Topics*

Theme	Sub-theme
Interpersonal Skills	When to refer an athlete How to refer an athlete on Who to refer an athlete Raising concerns
Culture	Abuse Whistle blowing Overtraining
Coping	Coping with loss Coping with an extended rehabilitation Coping with a career ending injury Coping with pain
Identifying Psychological Difficulties	Signs that an athlete needs help Adaptive and maladaptive emotions
General Miscellaneous	General introduction to the psychology of sport injury Specific guidance for teaching different health practitioners

In addition to the specific topics that SIRPs sought to understand, table eight outlines the main practical skills SIRPs suggested they would like to see covered in a CPD resource looking at the psychosocial aspects of sport injury.

Table eight demonstrates the wide range of applied skills that SIRPs suggested they would like to see as part of a CPD resource. These results help to support the idea of developing a CPD resource that favours actionable insights. As previous research has highlighted (e.g., Hemmings & Povey, 2002; Heaney et al., 2015; Larson et al., 1996) SIRPs have indicated a preference for developing/using practical skills over purely theoretical tasks. While some of the skills suggested are those often found in traditional psychological skills training packages (e.g., imagery, goal setting; Hardy, Jones, & Gould, 1996), SIRPs also recognised the need to move beyond these skills. In particular, SIRPs highlighted that they would like to learn more about working with athletes who have



mental health difficulties. Such suggestions may be the result of recent increased media focus on mental health. Interestingly, SIRPs responses also demonstrate that they would like to move beyond the traditional model of rehabilitation (focusing on recovery to pre-injury form) and instead would like further information on promoting growth in their athletes. Such results are pleasing to see, and demonstrate an increasing recognition in the role that adverse experiences (such as injury) may play in the career development of the athlete and the potential to use these experiences to allow the athlete to experience growth.

**Table 8.**

*Practical skills sought by SIRPs*

Theme	Sub-theme
Interpersonal Skill	Communication skills Practitioners/athlete relationships Building relationships
Psychological Skills	Imagery Goal setting Profiling (personality) Strategies
Mental Health	Depression - prevention/help How to improve mental wellbeing
Return to Play	How to address readiness to return How to recognise the psychological barriers to return How to monitor barriers to return
Promoting Growth	Help an athlete to build positive motivation Helping an athlete to build resilience and mental strength Overcoming barriers in a positive way How to incorporate other hobbies and learning
Athlete Management	How to manage an athlete through a challenging time How to manage athlete expectations

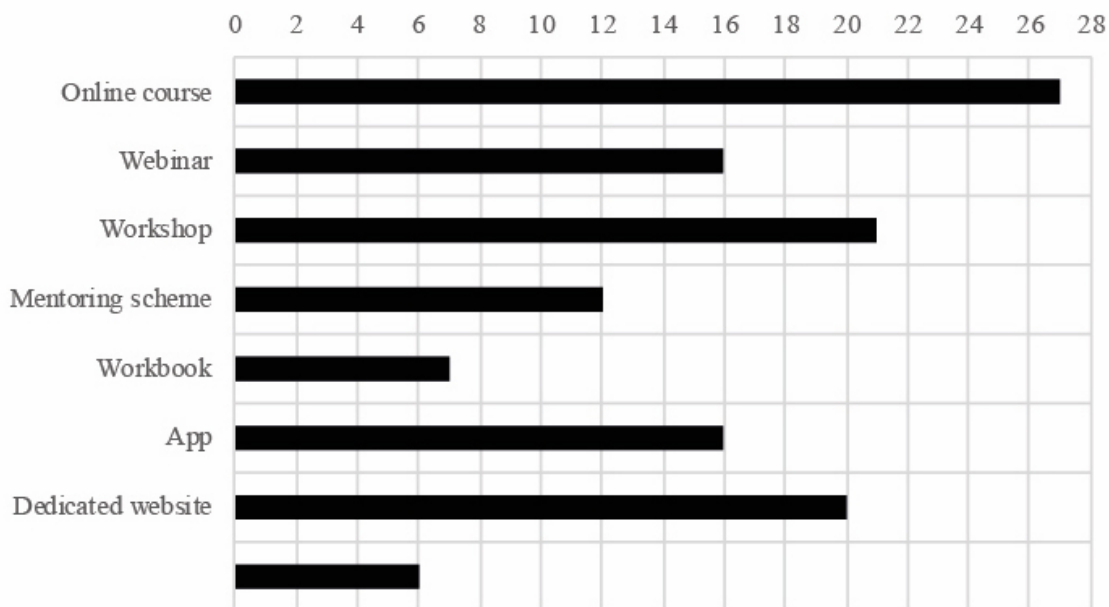
In considering the format of a new CPD resource participants were asked to consider their preferred method of delivery. Frequencies for each of the different methods of training are shown below in figure nine.

Figure nine demonstrates that the preferred method of delivery was an online course, followed by a workshop, a dedicated website, webinar and an app. Whilst the popularity of an online course remained consistent with the insights offered by Armstrong

and Weidner (2010), the least useful methods of delivery were reported to be DVD/video content, workbooks, and mentoring schemes. Interestingly, these results differ somewhat from the findings offered by Arvinen-Barrow, Hemmings, Becker, & Booth (2008). Results highlight a preference for methods that can be easily accessed, delivered away from a classroom environment, undertaken in their own time and undertaken online. Rather than more traditional methods, such as workshops, seminars, mentoring, and coaching as reported by Arvinen-Barrow et al.

**Figure 9.**

*Methods of Delivery SIRPs Would Find Useful When Learning About the Psychosocial Aspects of Sport Injury*

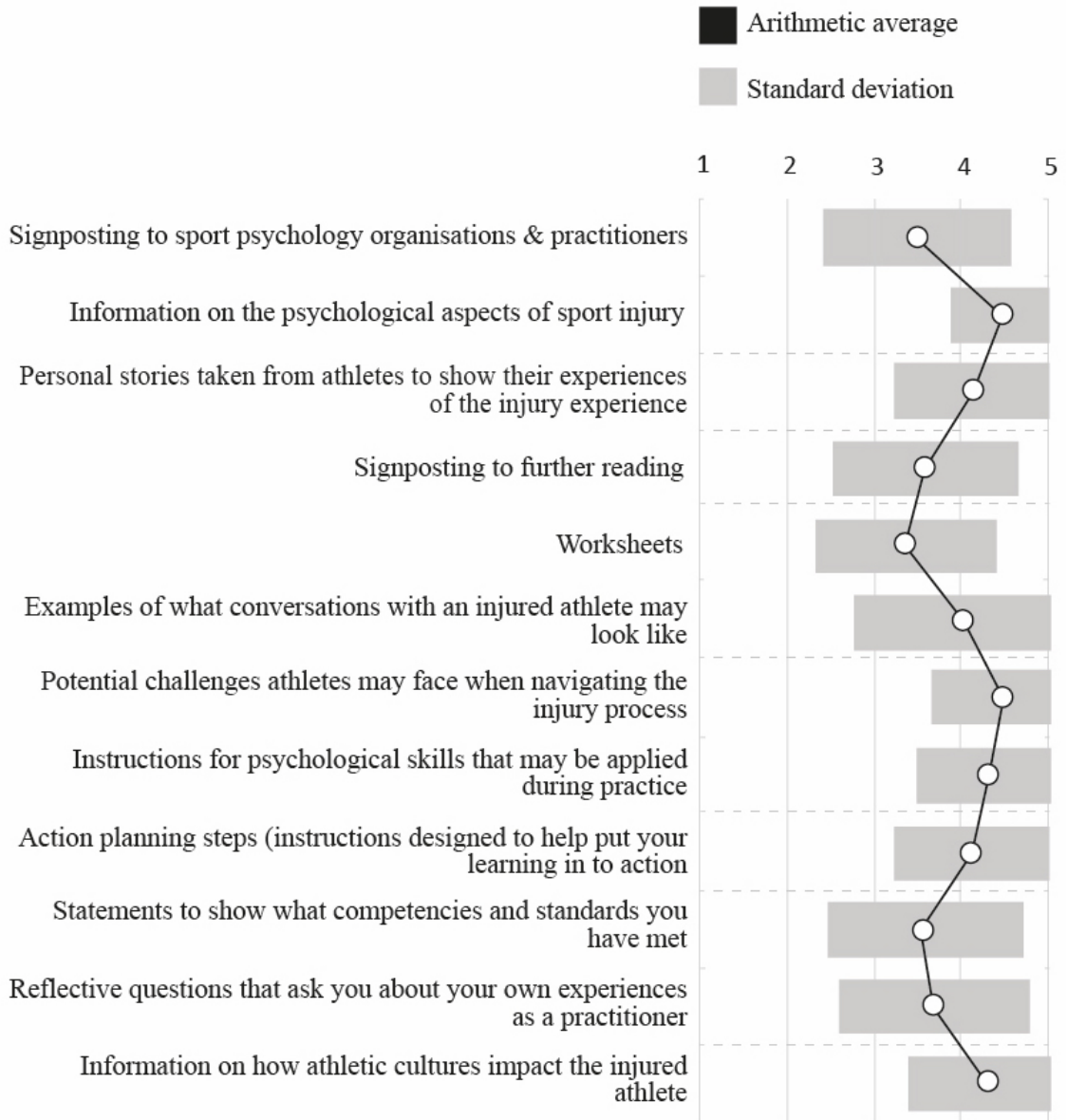


To further expand on these suggestions, participants were also asked about a number of potential ways in which content could be delivered. Their responses are outlined in figure ten. SIRPs rated 7 of the 12 methods of delivery as either useful or very useful. These included providing information on the psychosocial aspects of sport injury, using personal stories taken from athletes, providing example conversations, outlining potential challenges athletes may face, giving instructions for psychological skills, providing action planning steps and giving information on how athletic cultures impact the injured athlete. These results suggest that SIRPs are seeking specific information, delivered through relatable methods (e.g., example conversations or personal stories) with suggestions for actions or skills to help the athletes. Such suggestions provide a valuable framework for future CPD resources, highlighting the need to deliver information but to

also ensure that delivery includes relatable scenarios that could be easily applied to their own practice.

**Figure 10.**

*Summary of Types of Content That Could be of Use When Learning About the Psychosocial Aspects of Sport Injury*



#### 5.4 Overall Conclusions

The results from this study provide a number of novel insights, firstly into SIRPs previous experiences of CPD and secondly, into their requirements for future training resources. In particular, this study has highlighted that many SIRPs have had some useful previous experiences of CPD which have mostly occurred when this has been delivered in an accessible format. SIRPs have valued quick access to information (e.g., twitter or

podcasts) yet also found discussions with experts or other SIRPs useful. Thus, the indications here are that quick accessible resources may be valuable for initial problem solving, but that SIRPs also value the opportunity to discuss this information in more detail.

In developing resources, SIRPs have emphasised the need for material to be accessible. In this case ‘accessibility’ may encompass a variety of considerations. Resources should be TIME accessible, suiting the working patterns of SIRPs allowing them to be easily accessed, delivered away from a classroom, undertaken in their own time and available online. Resources should include access to short bursts of information as well as the opportunity for further later discussion. Resources should be AUDIENCE accessible, including appropriate tone, avoiding academic jargon, and easy to understand. Resources should be PRACTICALLY accessible, including some theoretical information but ensuring that practical skills are a central focus. Activities should be authentic to real patient cases including stories or conversations and look to help SIRPs to develop their learned skills within working scenarios.

## **5.5 Summary**

In summary, this chapter has focused on the first stage of the action cycle outlined in the KTA framework. Attention was placed on identifying and assessing potential problems and barriers that SIRPs face when trying to access knowledge on the psychosocial aspects of sport injury. In addition, attention also focused on identifying how future knowledge translation interventions could be improved, specifically taking SIRPs preference into consideration. Remaining in line with the KTA framework, the next chapter in this thesis focuses on using the collected insights to select and tailor a purpose-built intervention.

**Chapter Six: Developing a Knowledge Translation Tool  
Designed to Bridge the Gap Between Research and  
Practice**

## **6.0 Overview**

This chapter brings together the results from chapter four (meta-synthesis) and chapter five (practitioner survey) to reach the subsequent stage on the KTA framework that encourages the selection, tailoring and implementation of interventions. This chapter focuses on the creation, design and development of a knowledge translation tool.

### **6.1 Selecting a Method of Knowledge Translation**

In order to translate knowledge, previous literature has typically used traditional methods of dissemination (e.g., journals), as demonstrated in chapter four. However, the use of creative analytical practices offers an alternative and novel dimension to knowledge translation practices. These practices, as described by Richardson and St Pierre (2005), encompass a broad range of creative practices such as poetic representation, ethnodrama, and the use of video and performance-based mediums. Given their accessible format, such practices provide valuable suggestions and sources of inspiration when considering how to translate knowledge to SIRPs. With the range of creative analytical practices available, drawing on these methods of representation presents an exciting opportunity in which to create research and produce materials that apply research findings, making these findings more accessible to a wider variety of audiences. In terms of this thesis, creative analytical practices offer the opportunity to present the research knowledge from chapter four to SIRPs, through a medium that is specifically developed to fit SIRPs preferences, as described in chapter five (e.g., time, practically and audience accessible).

Within the sport, exercise and health literature there has been a growing increase in the diversity of innovative methods being used to present research findings, including a strong focus on visual and written mediums. For example, using visual methods researchers have encouraged participants to tell their story through the collection of meaningful items (Busanich, McGannon, & Schinke, 2016), the art of photography (Orr & Phoenix, 2014) and through drama (Douglas, 2014). Likewise, researchers have also drawn on written mediums to portray participants experiences through poetry (e.g., Carless & Douglas, 2009; Douglas, 2012; Sparkes & Douglas, 2007), vignettes (e.g., Allen-Collinson, Owton, & Crust, 2016; Perrier, Smith, & Latimer-Cheung, 2015; Szedlak, Smith, Day, & Callary, 2018), narratives (e.g., Cavallerio, Wadey, & Wagstaff, 2017; Erickson, Backhouse, & Carless, 2016), and creative-nonfiction (e.g., Carless & Sparkes, 2007; Smith, 2013; Smith et al., 2013; Smith et al., 2015). These researchers

have shown that both visual and written methods may be used to produce powerful and evocative representations of experiences, which as Smith (2013, p. 135) suggests, helps researchers to “...show rather than tell theory in and through story.” Not only do these mediums enable human experiences to be represented in a fluid and complex manner, they also offer those who witness the story the opportunity to make help make sense of the experience (McMahon, 2013).

While these creative analytical practices have many strengths, at present most of the studies discussed above have focused on the use of creative analytical practices as a way of representing data through a published medium, rather than as an educative tool. As a consequence, a number of questions are often left unanswered. For example, what do these practices *do* for people? How do they *move* them? What *changes* occur as a result of looking at or reading these analytical practices? What has often been absent from the literature so far is the use of any framework to apply these practices as an educational tool and subsequently to evaluate the effectiveness of this tool.

### **6.1.1 Narrative pedagogy**

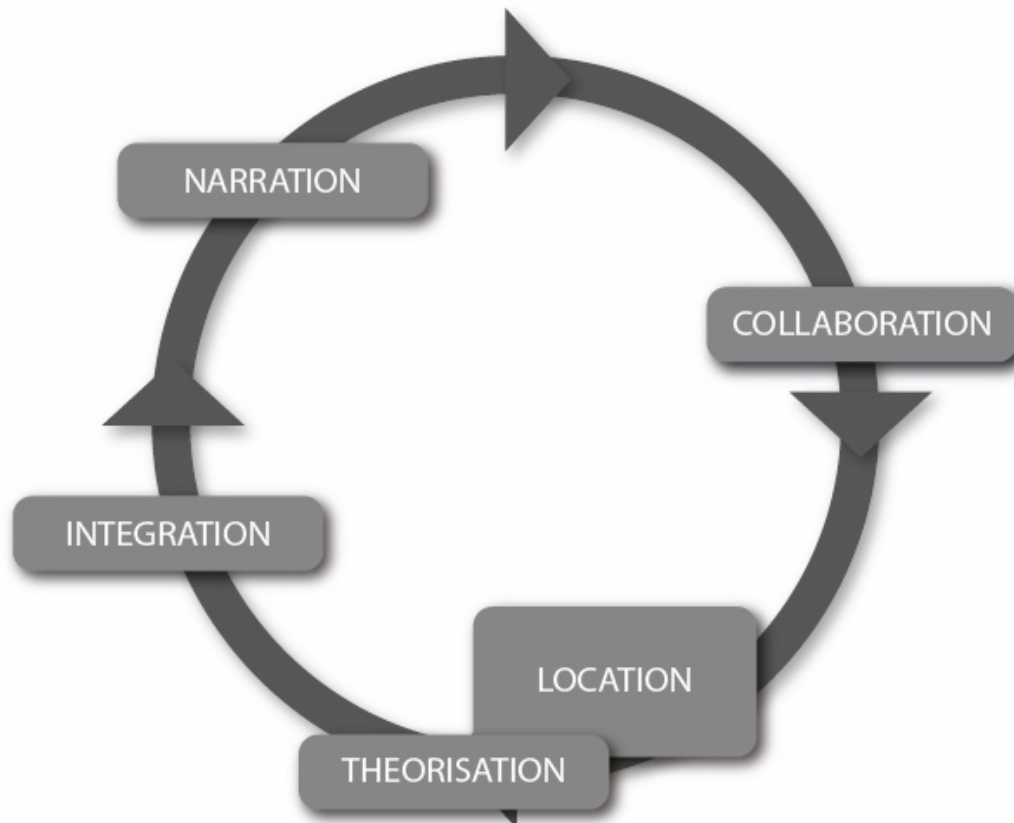
To answer some of these questions, narratives, and more specifically the pedagogical impact of narratives, may offer a useful creative analytical practice in which to develop a knowledge translation tool. Not only do narratives offer the opportunity to narrate the experiences of athletic injury, there is an increasing recognition of the potential narratives have as a tool for facilitating learning. Narrative pedagogy has previously been demonstrated to promote learning, understanding and potential action (McMahon & Smith, 2016). Thus, the use of this framework fits well with the aims and applied nature of the development of a knowledge translation tool. Providing a framework that demonstrates *how* creative analytical practices could be used to develop a knowledge translation tool. It not only considers the use of stories, but how learners may be encouraged to engage with these stories, to theorise with them and encourage them to take action. Furthermore, the use of athlete’s personal stories and example conversations were methods identified by SIRPs as useful and relatable in the online survey (see section 5.3.2). Consequently, narratives as a pedagogical resource provides much promises as underpinning for an educational tool offer the potential for a complimentary tool to promote knowledge translation.

The possibilities of narrative pedagogy were recognised by Goodson and Gill

(2011), who suggested that this would allow for complex phenomenon to be explored. To offer a formal definition narrative pedagogy is the “facilitation of an educative journey through which learning takes place in profound encounters, and by engaging in meaning-making and deep dialogue and exchange.” (Goodson & Gill, 2011, p. 123).

**Figure 11.**

*Spiral of Narrative Pedagogy*



*Note:* Reprinted from “Part II: Narrative as a pedagogy: by I. F. Goodson, and S. R. Gill, 2011, *Narrative Pedagogy: Life History and Learning*, p.126. Copyright 2011 by Peter Lang Publishing Inc.

As shown in figure 11, Goodson and Gill (2011) presented a spiral of narrative pedagogy as a continual and ongoing process. This framework for narrative learning focuses on three stages of learning: (a) narration, (b) collaboration, and (c) location. The third stage location is developed further via two stages, theorization, and integration. For Goodson and Gill (2011) the creation of narration offers a starting point. However, they also emphasise the spiral nature of the process and that it is not a ‘stage’ model to be followed. Individuals will join the process at varying points as they visit and revisit themes and



experiences. Each stage offers a different emphasis and facilitative purpose (Goodson & Gill, 2011):

1. Narration: offers the opportunity for individuals to prepare and share narratives of their lives as lived. During this phase individuals share or listen to the stories that are presented on a given topic.
2. Collaboration: allows for the examination, questioning and challenging of meaning of these stories, for the purpose of understanding the lived experience. Here questions may be asked such as ‘what are the challenges or dilemmas of this story?’
3. Location: is a highly pedagogic process that occurs in two distinct phases:
  - *Theorisation*: encourages learners to reflect on the gap from what has been shared in the story and their own life knowledge. In doing this, learners begin to understand personal knowledge gained through previous experience and how historical and social knowledge may add to this
  - *Integration*: encourages the individual to consider whether they wish to accept the new insights and ultimately start integrating the new insights into their current story.

Over the past decade, research has increasingly recognised the potential of narratives as a tool to facilitate learning. For example, Douglas and Carless (2008) used written narratives to explore coaches’ responses to the three different story forms, while McMahon (2013) used athlete stories to explore how narrative might challenge existing coaching practices in swimming. While such studies have endorsed the use of narratives as an educational tool, they have not been underpinned by any narrative framework. Indeed, McMahon, Knight, and McGannon (2018) have thus far been the only authors to adopt Goodson and Gill’s (2011) framework for narrative learning. Their research used stories as a tool designed to educate sport parents from gymnastics and swimming contexts about abuse in sport. Adopting Goodson and Gill’s four-phase process, three athlete stories were initially shared (narration), before the researcher and participants engaged in a dialogical interaction to discuss the shared insights (collaboration). These discussions, were then followed up by presenting a tabulated summary of key points, relating to what emotional and physical abuse in sport is, (location) before revisiting the athlete’s stories again (integration). Their results were not only able to show that parents were capable of identifying unacceptable coaching practices but also that parents

struggled with the underlying tensions of a high-performance culture and ensuring athlete welfare. Whilst McMahon et al. highlighted a need for further investigation into understanding what occurs post narrative pedagogy, their study is the first to integrate Goodson and Gill's framework as an educational tool.

Adopting Goodson and Gill's framework not only offers a guiding process of learning but also offers a flexible framework in which diverse and innovative methods may be integrated to facilitate pedagogical activities. With this in mind, the following section outlines the development of a knowledge translation tool designed to educate SIRPs on the psychosocial aspects of sport injury.

## **6.2 Process of Creating a Knowledge Translation Tool**

This section focuses on offering full details of how the 'Psychology of Sport Injury' (PSI) online course was developed. The PSI course was designed to provide an online platform to develop SIRPs' understanding around the psychosocial aspects of sport injury. Drawing on the insights collected from the meta-study (chapter 4), three modules were developed (Benefits of Sport Injury, Psychological Responses to Sport Injury and Culture Surrounding Sport Injury), each of which represented one of the overarching themes from the meta-study. The decision to focus on three of the themes from the meta-study was taken due to the time and resources needed to create and evaluate each module, as well as the time that would be taken by participants to complete each module. Using Goodson and Gill's notion of narrative learning as a structure, each of the four phases used to create these three modules will now be discussed, alongside how the meta-study and practitioner insights were integrated into the design.

### **6.2.1 Phase one: narration**

The first phase of narrative pedagogy is narration, where emphasis is placed on providing a story for the theme or topic in question. To narrate the experience of athletic injury, a creative non-fiction story was developed for each of the themes from the meta-synthesis. Creative non-fiction was used for a number of reasons. First, it offers the opportunity to present an authentic representation of the multidimensional nature of the injury experience (Smith, 2013). Given that the themes developed in the meta-synthesis were often complex, the use of creative non-fiction may help to represent the multidimensional nature that is injury.

Second, it offers the possibility of reaching multiple audiences through the use of everyday language, real-world experiences and emotions (Smith, 2013). In this case audiences may include (among others) physiotherapists, sports therapists, osteopaths, strength and conditioning coaches, and doctors. The insights from chapter two served to highlight how created knowledge is often not reaching these audiences, while the survey helped to identify SIRPs factors around why SIRPs may not be accessing resources (e.g., not clear to understand, use academic jargon and inappropriate tone). Creative non-fiction offers the opportunity to address these challenges by presenting complex evidence-based information in a user-friendly format. Fundamentally, if presented in an accessible format then the readership extends to any individual involved working with athletes.

Third, creative non-fiction helps to emphasise the embodied experience of injury by enabling the story teller to draw on the sensory nuances of the experiences, such as smell, touch, sound, sight and taste (Caulley, 2008). Such senses were highlighted in the meta-synthesis, thereby bringing authenticity into story and offering the reader a more vivid sense of the action unfolding in front of them (Caulley, 2008).

Finally, the engaging nature of stories offers individuals a medium in which to connect and make sense of experiences (Gutkind, 2012). As chapter five highlighted, SIRPs demonstrated a preference for resources to draw on authentic cases that represent the experiences of practitioners and athletes. Creative non-fiction offers the opportunity to combine thick descriptions of athlete's injury experience with the collated insights from the meta-synthesis, in an effort to show authentic experience rather than tell it. Developing a series of creative non-fiction pieces offers the reader the opportunity to connect with the athlete's perspectives and consider how this may influence their own practices.

In order to develop the creative non-fiction stories, the first step was to ensure an authentic narrative voice was created. Consequently, following ethical approval (Appendix F), four participants were recruited, all of whom were currently experiencing an acute athletic injury and who were willing to voice their injury stories as they happened. Adding additional prospective data to the meta-study and survey insights helped to construct the authentic characters each story was based on (Smith et al., 2013). By collecting prospective data on athletes injury experiences it offered a sense of time, location, a plot inspiration and dialogical examples, that may not have been achievable through the meta-synthesis themes. Therefore, a criterion-based purposive sampling (Sparkes & Smith, 2014) was used to ensure recruit athletes who met the following

criteria:

1. The athlete was participating in at least a county level of sport or the equivalent.
2. The participant was at least 18 years old.
3. The injury had been sustained within the previous week of making contact with the researcher.
4. The injury was acute in nature.

A number of local sport injury clinics, coaches and sport injury practitioners acted as 'gatekeepers'. Upon identifying a potential participant, an information sheet (see Appendix G) was provided and an email introduction was sent from the gatekeeper introducing the participant to myself as the researcher. The four participants recruited were from a range of sports (i.e., netball, handball, athletics and triathlon/ultra-triathlons), aged between 20-45 years old and had each sustained a different injury (e.g., ankle fracture, hamstring sprain).

Participants were invited to take part in an initial interview, the aim of which was to allow participants to voice their injury story. All interviews took place within one week of their injury occurring and followed a three-part process:

1. Informal conversation with the participant/rapport building (e.g., how was your journey? how are you feeling?) and a brief overview of the research (e.g., informed consent, anonymity and confidentiality).
2. Opening questions (e.g., tell me about your initial involvement within sport, tell me about your current injury) and the narration of the injury story by the participant (e.g., tell me about your current injury...)
3. Debrief (e.g., how are you feeling having talked about your injury today?) and closing questions (e.g., how are you feeling after talking about your injury today?)

The interviews lasted between 38 minutes and 128 minutes in length. This time range reflects the unstructured narrative approach to the interview, during which participants were asked to narrate their injury story so far. At the end of the interview participants were provided with a research diary to write about their injury experiences. The diary was predominately unstructured and allowed participants to incorporate entries when they felt they were warranted. The only direction was a single instruction page which outlined how to complete the diary (Appendix H). At the top of each page, there was one closed question and one open question which asked participants to describe their injury

experience:

1. How do you feel about your injury today? (Choose only three words that describe how you feel).
2. Please tell me how you feel about being injured today - what have you noticed?

This unstructured approach placed the participant at the centre of the narrative dynamic, enabling them to voice their own story. Adoption was further encouraged by offering the participant a choice of how they wished to record their data (i.e., written, audio or visual). A voice recorder, disposable camera and the physical diary, which was constructed to include space to write, draw and pouches to collect items of importance, were all offered to participants during the first interview. Following completion of the first interview, follow up interviews were scheduled at approximately two-week intervals. This continued until each athlete returned to competitive sport, causing data collection to stop. Due to the acute nature of the injuries, each participant completed two interviews with one participant completing three interviews.

In preparation for the follow-up interviews, audio from the previous interview and any collected diary entries were revisited. Any additional questions or areas that required further clarification were noted and used as prompts during the interview. During the follow-up interviews the researcher used a similar format to the initial interview but with an alternative first question, how have things changed since we last spoke? To ensure reduced response fatigue between interviews, regular reminders to complete the diary were sent throughout the study, either through text message or emails. As the focus of data collection was to provide an 'authentic voice' for the creative non-fiction pieces, data collection and participant recruitment continued until all seven overarching themes presented from the meta-study were represented within the athletes stories.

### ***Developing the creative non-fiction stories***

Following completion of the interview and diary-based data collection I adopted the perspective of a story analyst. In order to write the creative non-fiction, I paid close attention to the structure of the participants' stories (i.e., How are authentic stories of injury told, what phrasing or dialogue is present). In line with this approach dialogical narrative analysis (DNA) was used given its potential to examine what is said, what resources structurally form each story, and what each story does (Smith 2017b). Drawing on Frank (2010; 2012), Caddick (2016), Smith, McGannon et al. (2015) and Smith

(2017b), the following analytical stages were undertaken in an iterative nature. Firstly, a period of indwelling was undertaken to immerse myself in each of the participant's stories. This began during the initial transcription and continued through the reading/rereading and listening of each interview and any field notes taken. It was also during this stage that consideration was given to Frank's (2010, p. 75) questions of storytelling practice, specifically "What does the story make narratable?" Next, notes were added to each athlete's interview and any observable themes from the meta-study were also highlighted. Upon completion of this stage the overall story was summarised and the prominent themes noted. An overview of the themes identified within each athlete's story are summarised in table nine.

**Table 9.**

*Summary of Themes Witnessed Within Each Athlete's Story*

	Sophie	James	Denise	Michael
Injury Culture		▲		
Athletic Injury	△	▲		
Underlying Factors Underpinning Response to Injury	▲	△		△
Navigating the Rehabilitation Process	▲	▲	△	△
Coping with Injury	△		▲	▲
Social Support	▲	△	▲	▲
Benefits of Sport Injury	△		▲	

At this point it was noticeable that each athlete's story drew on one or two of the themes throughout, all represented themes are depicted by triangles. The stronger themes are depicted for each participant, by the solid filled triangles in table nine. Whilst the other themes were often represented in part, typically there were two stronger themes represented by each athlete's experience. For example, Denise's overall story focused on the benefit aspects of the injury experience, specifically regarding the social support she received and how she viewed the injury experience.

The next step focused on identifying the specific elements of formal features with each story. These included the overall structure of the story, changes in tense, transitions in points of view (e.g., first, second or third person), use of intensifiers, mental verbs, and

the transitions of each scene (Lieblich, Tuval-Maschiach, & Zilber, 1998). For example, Sophie's story often switched tenses from first person (I) to third person (it) when describing her injury, used language such as 'hurting', 'stabbing' or 'aching' to describe her pain and relied on a core set of intensifiers to help describe the intensity of the experience (e.g., more, almost, better, quite, very, kind and really). Interestingly, throughout the interviews her vocabulary was varied, and she rarely repeated the same descriptive words. Focusing on these formal features of the story not only helped to build the authenticity of the athlete's story but also provided phrases that helped to build an emotional account within the creative non-fiction (Lieblich et al., 1998; Smith, et al., 2013).

Once the formal features of the story had been identified, analytical dialogue was opened up further by asking a number of dialogical questions (Frank, 2012; Smith, 2017b): including resource questions (e.g., what resources shape how the story is being told?), circulation questions (e.g., Who tells which stories to whom?), affiliation questions (e.g., Who will be affiliated into a group of those who share a common understanding of a particular story?), identity questions (e.g., How does the story teach people who they are?), body questions (e.g., What stories do the participant and the researcher hold close to their hearts?) and function questions (e.g., What does the story do for and on the person?).

The final step in developing the creative non-fiction was to shift perspectives to that of a story teller. It was here that the structural insights from participants' stories were combined with the themes identified from the meta-study. Three themes from the meta-study were selected to form the three modules: benefits of sport injury, psychological responses to sport injury, and culture surrounding sport injury. There were no specific criteria in choosing these themes, but in making this choice I did endeavour to ensure a range of literature was represented, for example, including the theme of benefits ensured that both positive and negative experiences were represented, while including culture ensured that literature published in sociology journals was included. For each of these three themes a plot line was developed, and characters formed by drawing on the work of Franklin (1994) and Gutkind (2012). The aim here was that the three selected themes from the meta-study would each have a separate creative non-fiction story. In writing this story, quotations from that specific theme in the meta-study were used alongside quotations, phrasings, and story structures identified from the participants' stories. The final product of this phase was a creative non-fiction story which represented the nuances

and intricacies of a specific theme from the meta-study, but which was an authentic story based on the use of participant data. With these points in mind Sophie's story is now presented, to show the psychosocial responses faced around injury. The two remaining creative non-fiction stories can be found in Appendix I.

### *Sophie's Story*

Thumbing the pages of Vogue, I toss it aside. Normally the glossy pages offer distraction but not today. It seems nothing is going to help soothe the gnawing beast, rumbling around. I'm adamant the receptionist can hear my heart pounding from across the room, I closed my eyes and breath through my nose.

*What if its serious and I need surgery!* The idea of needing surgery shook me to my core. *I can't have surgery, it would keep me out for the rest of the season.* I shake my head quickly to erase the thought.

The waiting room remains still and quiet, except for the receptionist rhythmic tapping. Muffled voices get louder as a glass door slides open. A young woman steadily emerges and hobbles towards the exit. I realise she has that all too familiar grimace on her face. My heart sinks, *I know exactly how you feel.* We share membership to an unfortunate club. As I wished for things to be different my thoughts drift to memories of the past 24 hours. It was all so sudden and without warning. A pain like nothing I had ever felt before, a pain that reduced me to a blubbering mess. *Would things have been different if I had listened to my body?* I could only wonder.

"Are you sure you're up to this?" Tom quizzes. "Is it really worth aggravating your injuries for?" "Yes" I reply curly, proceeding to lace up my walking boots. "We've already had to cut out the cycling and running this weekend, I'm not cutting this out as well!" I reply curtly, proceeding to lace up my walking boots.

"Well alright" he replies hesitantly. We set off just after half nine to take on the 6-mile route that includes a breathtaking 900m ascent up the beaten, rocky path of Scafell Pike. But it wasn't until two hours into our walk that we start to near the summit. As the terrain starts to steepen, a dull ache begins to creep across my right knee.

"Tom, lets take a few, before we attack the summit" I call out ahead, while dropping my rucksack to the floor and sitting on the nearest bolder. I take a moment to



stretch my leg out. Twisting it to the right...left...backwards and forwards, but nothing. *Weird! Maybe my legs are just tired, it's been a busy week.*

“Everything alright?” Tom asks

“Yeah everything is fine, I just think my legs are a little tired. Is it much further.

“Nah not really, should only be another 20 minutes or so” he replied. Packing my water in my rucksack I get up and we keep moving. As predicted we reached the peak of Scafell Pike 20 minutes later, shortly before noon. After a quick drink and a bite to eat, we set off down the mountain. Not long after we start the descent, the dull ache begins to morph into an intermittent stabbing pain coming from behind my knee.

*Should I tell Tom? No, its nothing, your just tired!*

As we navigate the cobbled pathway, the attacks intensify. A quiver in my stomach accompanies each step. *What is going on? Why is it not going away?* I felt the heat forming in my eyes, *no I won't cry!* But its too late, after the first tear broke free the rest followed in an unbroken stream.

“Sophie, what's wrong?” Tom asks, rushing over.

“I don't know!” I reply, between sobs. “I can't walk...like its so painful. How far are we from the Inn?”

“About 1.5 miles, think you can make it or do we need to call for help?” Tom replied. *We can't call for help, it's only a niggle. I don't want to be THAT person...I'm stronger than that.*

“No I think I can make it” I blurt out. *I can do this. I can walk through the pain. I just wish I knew what was happening to me and what I can do to rid of it!*

All the way down, my body continued its assault. On one hand the stabbing pains attacked my knee like a machine gun, relentless. On the other hand, the internal bombardment of questions. *What is going on? What if I can't compete like this? What if I don't have time to recover? We have spent so much money preparing for this, what if I cant go? All coming back to one single question, is an ironman even do-able, if I cannot even walk?*

“Sophie?” a lady calls, bring me back to reality.

“Yes, that's me” I reply, as I stand and hobble towards her. Clara was a long standing physiotherapist at the clinic. Whilst I had never been treated by her a number of triathlon friends had spoken highly of her. Apparently she was a keen triathlete herself, which in the grand scheme of things was a small but reassuring notion.

“Please take a seat Sophie” Clara states as she gestures to the bed. “So tell me what brought you here today?” As I reel off my history and the tale of the past 24 hours, she listens intently, asking just the odd question.

“Right I see. Lets take a look. Remove your shoes and face the wall for me, shoulder width apart.” My eyes never leave her, as I study her movements. As Clara walks around the familiar gnawing feeling rears its head with a vengeance. *What if its serious and I need surgery! Please, please don't let me need surgery. I'll never make it back in time. What if I can never run again!*

“Okay, try and walk to the wall and back again, as normally as you can muster” Clara asks. Drawing the air in and holding it there I slowly lift my leg for the first step. As if on cue, the machine gun assault begins. The distance is only a few meters, but it feels like a marathon. Shifting my weight, I keep going. *Come on its just a few meters! You're an athlete, get on with it!* I try to walk as normal as possible but as I take the last few steps I realise I am losing the battle. I try to stop my lip quivering, but its hopeless. A wave of hot tears stream down my face as I try to take the last couple of steps. Drawing my hand across my face, I turn away from Clara. She says nothing, but hands me the box of tissues.

“Good work Sophie, that can't have been easy” Clara states reassuringly.

“When you are ready pop yourself on the couch, laying on your back” I follow her instructions. *I really wish I knew what was wrong! I just can't explain it, its like no injury I have had before and the pain just comes out of no where!* As I lay there absorbed in my own thoughts, I am vaguely aware that Clara is stretching and feeling parts of my lower legs but as she works her way up to my knee, heat radiates throughout my body and my heart rate quickens.

“Relax Sophie, I am just feeling for any heat around your knee.” Clara softly states through a smile. My shoulders relax a little but I watch her like a hawk as she taps, prods and moves my knee. The rest of the session proceeds in a very similar fashion, at times sometimes causing pain and other times nothing.

“Right, Sophie. Do you want to just sit up for me.” Waiting for me to sit up before she proceeds.

“From the symptoms you have described and how your right knee is responding I suspect you are suffering from a something we call Patellofemoral Pain Syndrome, which causes pain around and under the kneecap.”

“So what does that mean? I ask.

“Well in a nutshell it means the muscles surrounding your patella or knee caps are too tight. So it is likely that the imbalance or weakness in the surrounding area is what is causing you the pain. We still have a bit of time, so if you are happy for me to I will finish up with some acupuncture to the area and then get you booked in for a follow-up in 4 days. How does that sound?”

“Okay” I nod, albeit reluctantly. *I’m not a fan of looking like a porcupine but if it helps then so be it.*

“Great. Lay back and lift your legs for me” Clara ask, placing a rolled towel under my knees. Reaching for the needles, I divert my attention away from Clara.

“Now, I am going to place them in a few locations so best to not move too much particularly as it can feel a bit uncomfortable.” “Does it hurt?” I ask tentatively.

“No it doesn’t hurt as such but you may experience a dull, heavy sensation around the area” I close my eyes and take a deep breath. I hear the faint rip of the needle package followed Clara gently placing her fingers just below her knee cap, followed by a warm sensation. The same sensation is felt in a further two spots around my knee. Minutes go by as I listen to Clara moving around the room.

“All out. When you are ready slowly sit yourself up and hop off the table.” She chimes. I wiggle off the couch, a little dazed but quickly righting myself.

“Okay, walk to the wall and then back to me” Clara instructs. I drag a deep breath in as I take the first step, no pain radiated from my leg. *What!* I take few more steps to confirm it. Sure enough, it felt good. A little battered but good.

“How is that possible?” I ask exasperated.

“Well the needles help to release tight muscles around the patella, which for you is where the pain is coming from” Clara explains.

“I can’t believe it ” I reply trying to hide my excitement.

“Just take it easy, its likely the muscles will start to tighten up again as the day goes on but see how it goes. You will also have to cut back on your training for the moment.”

“What all of it! Swimming, cycling...everything?” I blurt out

“Well put it this way. If you imagine your pain on a scale from 1 to 10, 10 being the worst pain possible. You can do activities that range from 1 to 3. So things that don’t interfere with the activity, as soon as it moves beyond that then you need to reassess or stop what you are doing. It may mean going back a few steps but it should

help you gauge your activities. I also want you to get into the habit of completing the stretches I give you, as well as icing your knee and using the foam roller. ”

“Okay so nothing past a three, got it. Will I recover sufficiently to compete at the Ironman in 3 months?” I say hopefully. “This won’t be a quick fix, but I am hopeful we can get you up and moving again.” I breathed a sigh of relief. *There is still hope.*

As I make my way outside, the warm breeze gently strokes my face as I turn to head towards Mornington Crescent tube station but my exhilaration is short lived. Halfway towards the station the familiar stabbing pain begins its assault. *NO! Please not here, not in public.* But my body isn't listening to my head and the attack's keep coming. The all too familiar warming sensation builds and I try to hold back the tears. Turning my face from the crowds, I keep moving forward but the pain grows with every step. *I cant do this, there is no way I am going to make it back to work, let alone the tube station.* Pausing outside an office entrance, I duck out of the crowd. *What do I do now? I cant keep going, it hurts too much.* As I pause to consider my options, I realise I only have two. Continue to try and walk home or call for help. My minds made up in seconds as I turn to hail a taxi home.

Four days later I find myself standing in front of the clinic door again. The past four days have been a rollercoaster of emotions, one minute I am fine the next I am a mess. I have taken Clara’s suggestions above and beyond. Diligently completing my prescribed exercises, icing and foam rolling whenever I have had the chance, even taking a spare foam roller to work. As I stare at the door, my stomach starts doing somersaults, but I don't know why. Pondering my sudden unease I wonder *Is it just being here or what might happen?* I take a deep breath and walk in.

“I have an appointment with Clara, Sophie Conroy” I mumble to the receptionist.

“Oh yes, take a seat she won’t be long” she replies. Almost as if summoned Clara appears with a beaming smile, as if happy to see me and my stomach settles down.

“You ready Sophie?” she asks.

“So how has it been?” Clara asks closing the door. Summoning the courage I explain

“Well, walking is getting a little easier but there is still pain, particularly going down stairs and when changing direction.”

“Well that positive as it’s only been four days, as I said its not going to be quick. So if its okay with you, I want to complete a quick examination and then some treatment exercises before finishing with some acupuncture. How does that sound”

“Brilliant. Shoes off an face the wall” Clara chimed. The start of the session was fairly straightforward. Whilst none of it was pain free, it was just about bearable. Frankly it was weird to feel the tight spots Clara was tackling as she worked to relax and stretched my thigh. Beyond this the rest of the session was a blur. It wasn’t until I was standing outside the treatment room that I realised I was autopilot, consumed by my own struggles. I sigh in frustration. I wish it was easy for me to confide in Clara how I was feeling. Really talk through the challenges I have been facing. Explain that even the simplest of task, seems like a mountains Hell! It doesn't get much simpler than trying to walk! The constant feeling of not knowing how my knee will react is exhausting.

As I start to move down the corridor I pause to look at the signed rugby team photos on the wall. I let out a sigh of relief, its a good thing that I don’t play team sports. Over the past four days I have felt pretty useless as a role model for our triathlon team, so it must feel ten times worse letting your team down. I shake the thought away. I just have to focus on my recovery. It will be a race against time to recover and get back for Hawaii but I have to do everything I can to get back in time for the race. *I’ll be damned is I am going to miss this race!*

### **6.2.2 Phase two: collaboration**

The collaboration phase involves the interpretation, reconstruction and revision of the reader’s understanding of the story presented. As Goodson and Gill (2011) highlighted, collaboration can take place verbally and non-verbally (e.g., through written reflections or readings). During this phase, emphasis is placed on encouraging the learner to reflect on their current interpretations of the story and how these interpretations relate to their previous experiences. To do this, a series of reflective questions were developed to encourage SIRPs to create connections between the creative non-fiction story and their own life, thereby encouraging them to understand and promote the transfer of ideas (Wiggins & McTighe, 2005). Drawing on the guidelines for question development offered by Wiggins and McTighe (2005) the following reflective questions were developed which would be appropriate for all of the creative non-fiction stories developed:

1. Did any part of the story grab your attention?
  - Note down what that was and why?
2. Considering [character's name] viewpoint, what are some of the key themes and ideas described within his story?
3. How do you feel [character's name] handled the situation?
  - Note down how you felt about the actions he took
4. Now put yourself in [character's name] shoes, would you have done anything differently if you were him?
5. What might prevent the practitioner from overcoming some of the challenges in this story?
6. Have you ever experienced a similar situation? Describe it briefly, considering...
  - How you acted
  - What you dais
  - How you felt at the time
  - How you feel about this situation

### **6.2.3 Phase three: location and theory**

Phase three focuses on the learner's development of a conceptual understanding of the topic in question. In this case, the focus is placed on developing an educational resource for specific themes of the meta-study. The aim of this educational resource was to now provide evidence-based information on the theme (based on the finding from the meta-synthesis) and applied recommendations. In line with the results of the survey, a short animation film was used to present information.

Drawing on the information presented in the meta-study and recommendations offered by Brisbourne, Chin, Melnyk, and Begg (2002) key points were compiled into short, simple sentences that looked to convey the information for each of the three themes. Emphasis was placed on using descriptive words and strong verbs to help convey the necessary ideas, while keeping the word count relatively short (under 700 words) in order to control the length of the animation. Once the script was drafted emphasis was placed on visualising complex ideas and drafting a storyboard for each theme. During this stage, diagrams for each part of the animation were sketched on 3 x 6 sheets to help illustrate the ideas described within the script.

Before building each animation, the voice over was recorded. This was achieved

using a Rode NT1-A microphone, M-Audio 2x2M audio interface and was recorded directly in to Adobe Audition. Upon completion the final voice over file was imported into Adobe Premiere Pro, before focus was placed on creating the animations. All of the animations were created using Adobe Illustrator and Adobe After Effects software. Working from the drafted storyboard, images were created and subsequently animated to illustrate the desired messages from the script. Once each animation was completed they were then imported into Adobe Premiere Pro and matched up with the relevant audio. Completed animations were then added to the composition and any final sound effects, transitions and music were added before exporting. These short-animated films can be found in each of the individual modules at [www.psidevelopment.co.uk](http://www.psidevelopment.co.uk) (see figure 12)

**Figure 12.**

*Screenshots of Short Animated Films Embedded in the Psychology of Sport Injury Tool*



#### **6.2.4 Phase four: integration**

The final phase, integration, encourages the learner to integrate what they have learned and consider how these new insights could be turned into action. Similar to phase two a series of reflective questions were developed that encouraged SIRPs to consider and reflect on their current practices in light of the new information provided. Drawing on the same guidelines offered by Wiggins and McTighe (2005) the following questions were

developed:

1. Knowing what you do now, how would you rewrite this story if you were the practitioner? Describe it briefly, considering
  - How you would act
  - What you would say
  - How you may feel
2. Is there anything that you could do differently in your own current practice that you feel would help address these challenges?
3. Is there anything you feel you still need to know about this theme?

### **6.2.5 Delivery mechanism**

Once the general flow and content had been created, attention was then placed on setting up a prototype learning management system (LMS) or platform for delivering the course. Before a specific LMS were chosen, decisions surrounding website hosting and domain names were needed. Consequently, the decision was made to host the website and domain through 1&1 IONOS for several reasons. First, due to an existing contract I was able to piggy-back the domain off an old domain free of charge. Second, the selected domain name ([www.psidevelopment.co.uk](http://www.psidevelopment.co.uk)) was available as nominal fee for the year. Third, it removed the need to purchase an additional secure sockets layer (SSL) certificate, and fourth, 1&1 IONOS offered WordPress hosting which removed the need for additional costs.

Once the website was set up, it was necessary to choose an appropriate LMS. During this stage, the course audience was a key consideration, as well as costing and access to technical expertise. Consequently, a range of existing LMS (e.g., LearnDash, LearnPress, Moodle, Docebo) were explored, before up ultimately, choosing LearnPress. LearnPress was selected for several reasons. First, it offered a range of extensive features that allowed for customisation. Second, it used a WordPress plugin which reduced the need for specific coding-knowledge and third, it was free.

### **6.3 Summary**

In summary, this chapter has outlined the steps undertaken to design and create a tool designed to educate SIRPs on the psychosocial aspects of sport injury. Utilising Goodson and Gill's (2011) framework of narrative learning as a structure, the four phases of the



process were outlined, discussing how each was applied to create the education tool. The next chapter focuses on implementing and then evaluating the designed intervention.



## **Chapter Seven: Delivering and Evaluating the Knowledge Translation Tool**

## **7.0 Overview**

The previous chapter outlined the development process undertaken to create a knowledge driven tool underpinned by narrative pedagogy. In this chapter, the knowledge translation process is continued, and attention is placed on the application and evaluation phases of the KTA model. Consequently, this chapter describes the delivery and evaluation of the knowledge translation tool to SIRPs working in applied practice.

### **7.1 Evaluating Narrative Learning**

Previous research has suggested that the use of narratives as a pedagogical tool can be empowering for learners, providing a catalyst that encourages them to seek connections and generate new understandings (Douglas & Carless, 2008; McMahon & Penney, 2013; McMahon et al., 2018). In particular, these authors have highlighted that narrative learning offers learners the opportunity to reflect, revisit, and work towards understanding the phenomena under discussion. The learner is therefore placed in the driving seat of their own development and encouraged to critically examine the stories that they hear and tell. Taken together, these studies indicate that narrative learning holds the potential to go beyond simply acquiring ‘new knowledge’, encouraging reflection and critical thought. In line with these suggestions, it is therefore imperative that any judgments on the effectiveness of narrative learning take into account these broader outcomes.

Evaluating the broad outcomes of narrative pedagogy means that any evaluation needs to go beyond simply asking what new knowledge has been gained, and instead might question whether the learner has been able to reflect, understand and apply the experiences to their own knowledge. Research has already started to consider the transformative impact of narrative learning. For example, Douglas and Carless (2008) were able to demonstrate the power of stories to promote reflection and critical thinking with high performance coaches. Following presentation of the stories, a combination of focus groups and reflective questions were able to document a process of questioning, summarising and incorporating that coaches engaged in. Using a similar evaluation technique, McMahon (2013) used reflective questioning and interviews to evaluate coaches use of three essential coach education approaches (e.g., self-reflexivity, holistic coaching and an athlete-centred approach; Miller & Kerr, 2002). Both of these studies demonstrate that qualitative methods may be valuable in evaluating understanding and application of topics taught through narratives, yet both only use this evaluation after the

narrative intervention has been delivered. An alternative evaluation strategy was presented by McMahon and Penney (2013) who implemented narrative tasks throughout a course designed for pre-service teachers, as well as including an evaluation after completion of the course. The strength of this approach was that it helped pre-service teachers to tell and depict their own experiences and ideas about teaching health and physical education. Offering an empowering experience that enable pre-service teachers seek connections between their past and present selves.

Although all of the studies discussed above were able to demonstrate that participants actively understood, reflected and at points integrated the subject matter, none of them have considered *how* the subject had been delivered. Such considerations are important as they may provide evaluation of the four-phase approach to narrative pedagogy. To address this limitation, the evaluation of the knowledge translation tool will use a two-part evaluation. Part one aims to understand if participants have been able to reflect, understand and integrate new insights surrounding the psychosocial aspects of injury. While part two aims to understand participants the opinions and perceptions of narrative pedagogy and the methods used to deliver the knowledge translation tool. Specifically, the aims of this study will be to:

1. Evaluate the use of a knowledge translation tool to enhance reflection, understanding, and integration of knowledge on the psychosocial aspects of sport injury for SIRPs.
2. Understand SIRPs perceptions of the value of the knowledge translation tool, including the use of narrative pedagogy and methods of delivery.

## **7.2 Method**

### **7.2.1 Participants**

Participants were recruited to the study using a criterion-based sampling. In order to participate, participants needed to meet the following inclusion criteria:

1. Be a qualified SIRP (e.g., physiotherapist, sport therapist, osteopath)
2. Over the age of 18 years old
3. Have access to the internet

Recruitment for this study was achieved through two mediums, email and social media. Following completion of the online survey (chapter five), nine respondents expressed an

interest in participating in the final intervention. Thus, follow up emails were sent directly to each participant introducing the study and inviting them to be involved. Alongside this recruitment strategy emails were sent to local sport injury clinics, social media invitations were also placed on Twitter, professional Facebook groups (e.g., Sports Therapy Organisation group) and online forums. Similar to the online survey, a recruitment post was crafted for each platform and included a brief invitation to participate and a shortened website link to the module sign up page.

A total of 25 SIRPs expressed initial interest in participating in the study. Of this group, seven completed some modules of the knowledge translation tool but had not completed at the end of data collection period, three formally withdrew and seven never started. In an attempt to re-engage those participants who had shown an initial interest, a follow-up message was sent on two occasions (via either email or social media). Due consideration was given after as to whether to chase participant involvement further, however it was deemed unethical to ‘chase’ participant involvement.

This left a total of eight participants, who all completed the study, however one participant faced technological issues that led to the loss of her reflective writing data. Details for the final cohort of eight SIRPs who completed the course are outlined in table ten.

**Table 10.**

*Final Cohort: Participant Details*

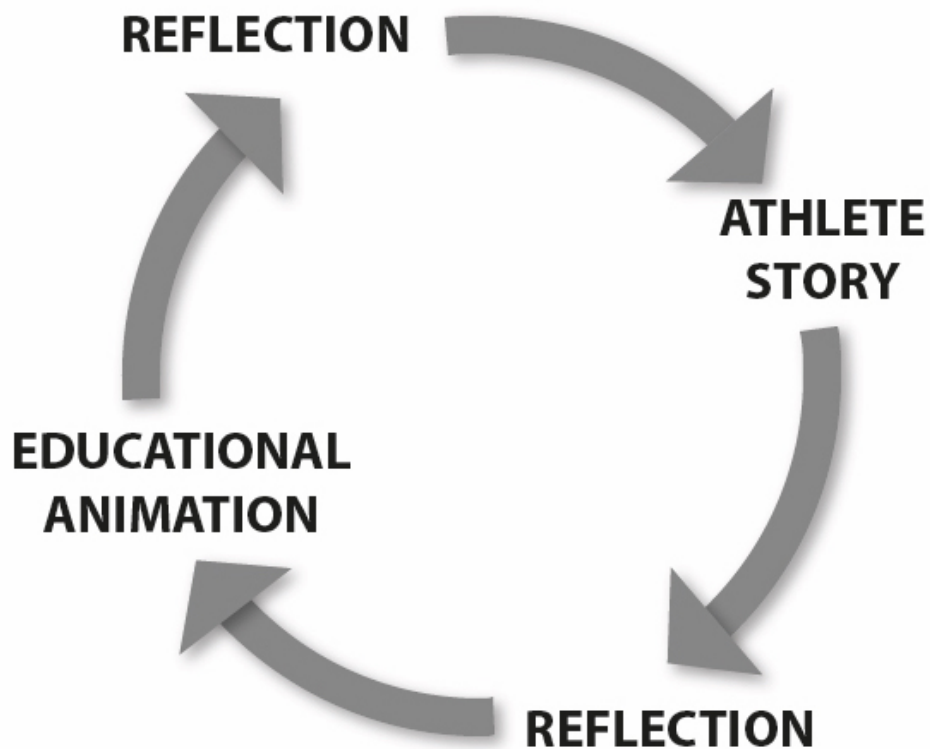
Pseudonym	Age	Occupation
Thomas	32	Sport Therapist
Caroline	30	Osteopath
Rob	25	Sport Therapist
Peter	26	Physiotherapist
Sue	48	Clinical Biomechanist
John	36	Sport Therapist
Janice	26	Sport Therapist
Brian	28	Physiotherapist

### 7.2.2 Procedure

Following institutional ethical approval (see Appendix J), participants were contacted by the researcher who introduced herself and the knowledge translation tool, hereby known to participants as a 'Psychology of Sport Injury Training Course'. Participants were informed that the course contained three modules or topics, each of which would be presented through a variety of means including stories, reflection, and an educational animation. For each of the modules participants were required to complete all of the four phases presented in figure 13.

**Figure 13.**

*Process of Narrative Pedagogy Employed within this Intervention*



All of the content for this course was housed on a dedicated course website, accessible only to invited participants. Each theme was created as a standalone module, that participants could complete at their own pace. As outlined in chapter six, for each module participants were first provided with the athlete story. Once the story had been read participants were then provided with the first set of reflective questions. Answers to these were typed online as part of the course content. Once these questions were completed

participants could then move onto the next task and access the educational animation. Finally, participants completed the second set of reflective questions. Throughout the module participants were able to go back to any sources of information (e.g., re-visit the story or re-watch the animation). Course administration was overseen by the researcher, who had administrative access to the progress of participants throughout the duration of the course.

While modules were being completed the researcher was contactable via email or directly through the website, should participants have any questions. Email notifications were also sent to participants if no activity was seen on their module account for a two-week period. If no activity was seen for a further two-week period, then an additional email notification was sent. If no activity or contact was seen on the account for a period of four-weeks, then the participant was withdrawn from the study. At the end of each module the participants were thanked for their time and responses, before being able to move on to the next module.

The knowledge translation tool was delivered through online platforms (e.g., email, learning management systems, e-surveys and social media) that presented a number of additional ethical considerations, particularly surrounding online data protection and data security. To address these concerns the following practices were used (a) each participant was provided with a unique username and password that used a combination of upper/lower case letters, number and characters, (b) any confidential data was encrypted and only accessible to the author, (c) an SSL certificate was secured for the course website to ensure all data remained private and secure and (d) a security plug-in (WoodFence) was installed to avoid potential hacking.

In addition to implementing the above data protection and security steps, attention was also given to ensure ‘valid consent’ was obtained (British Psychological Society, 2017). Alongside obtaining consent the following steps were implemented: (a) an overview and information sheet was presented on the first page of any electronic data, (b) an electronic copy of the university approved consent form was included following the information sheet and (c) to indicate that participants had read and understood the information a series of summary statements and check boxes were included (see Appendix K for details).

Once all modules had been completed, participants were invited to participate in either a qualitative survey or online interview. A series of questions were devised that were suitable for both interview or email format. The aim of these questions was to



understand SIRPs perceptions of the value of the knowledge translation tool, including the use of narrative pedagogy and methods of delivery. In total, eight broad questions were asked. These included:

1. I'd like to start by asking you how you got on with the course overall?
2. How did you find accessing the course and could anything be improved?
3. What did you think about the use of [insert story/animation videos/reflective questions]?
4. Following on from the last three questions above, how well did the three resources fit together?
5. If you were going to re-design the course, what would you change, remove, or add?
6. How do you feel that completing this course has impacted you as a practitioner at all? Please explain your answer?
7. Are there any ideas from this course that you will take forward into your practice?
8. What do we still need to do to better support practitioners?

In addition to interviewing or surveying those participants who completed the course, questions were adapted for participants who started the course but did not finish, participants who expressed an interest but did not start the course, and participants who withdrew. For example, for those who expressed an interest but did not start, sample questions included: (a) I'd like to start by asking you why you were interested in starting the course? and (b) what challenges effected you starting the course?

In total, two completers were interviewed over the telephone and six were surveyed. Of the remaining 17 participants, two returned the non-completion survey, while 15 participants offered no response to take part in any form of interview or survey. Both participants reported work and personal pressures as factors for affecting their involvement in the course.

### **7.2.3 Evaluating the intervention**

To evaluate the intervention, two sources of data were used, (a) the reflective answers provided by participants during each of the modules and (b) the interview/survey data provided on completion. A thematic analysis was used to analyse the reflective answers as the data collected using this method was rich in detail, included personal experiences, the consideration of social as well as psychological interpretations and can be useful for

producing analyses that can inform policy development (Braun & Clarke, 2006). Following the guidance of Braun and Clarke's (2006), a six-phases inductive thematic analysis was completed (see table five for details). The initial focus was placed on the familiarisation and coding of the data gathered. This included immersing myself within the data, generating initial codes and noting any thoughts during the process. Next, the initial codes were grouped into potential themes and any relevant data to the theme collated together. During this phase the themes were refined, named and subsequently collated together. Finally, refined themes were reviewed against participant responses before being organised and settled into the final themes. Throughout the analysis, Braun and Clarke's (2006) 15-point checklist of criteria for good thematic analysis was used as a technique for promoting rigour. These 15-points covered five areas of the research process: transcription, process, analysis, overall and the written report. For each of the 15-points, criteria were offered to help track progress throughout the research analysis. For example, point five suggests that themes have to be checked against each other and back to the original data set, while point nine highlights that the analysis should tell a convincing and well organised story about the data and topic.

A content analysis was used to analyse the interview/survey data. Following transcription, this data was deemed to be suitable for this type of analysis as it allows for the identification and exploration of patterns in the presented data (Sparkes & Smith, 2014). After immersing myself in the data, attention was placed on searching for themes in the raw data. Any identified themes were then linked to an excerpt and compiled to create meaningful categories. Before producing the final visual representation of the analysis, all of the data was reviewed to check that the clusters of themes represented the athletes' responses.

### **7.3 Results**

The following section first outlines the results of the thematic analysis, detailing the understanding, reflection and integration of the knowledge translation tool. Second, the results of the content analysis are considered, outlining participants perceptions of narrative pedagogy and the delivery of the knowledge translation tool.

### **7.3.1 Reflection, understanding and integration of knowledge on the psychosocial aspects of sport injury in SIRPs**

The thematic analysis led to the development of three overarching themes: the increased importance of looking beyond the physical injury, what would I do: reflecting on stories and hypothetical actions, and what can I do: practical applications.

#### ***The increased importance of looking beyond the physical injury***

This theme encompasses the reflections made by participants regarding the role of psychology as they progressed through the online course. Participants identified that there was more to understanding the injury experience than only concentrating on the physical injury. This understanding was developed and refined as participants progressed through the online course. For example, when asked how they would initially respond to the athlete stories, participants were aware of characteristics (e.g., empathy, understanding) that would help their practice, yet showed a focus on familiar rehabilitation steps, such as discussing expectations of post treatment, setting out a clear action plan and fully explaining the injury and healing times. For example, during the first module John described how he would approach the situation by being:

...empathic and actively listening his worries/thoughts, be supportive and reassuring with post injury rehab process and be honest and delivering realistic injury rehab and relevant outcomes with it. Educating him with post injury self-management to facilitate recovery process and ensure him there is a positive aspect toward sport or life itself. Plus, I think clear communications are crucial to prevent misunderstanding.

In later reflections participants continued to demonstrate how they were collaborating their understanding of the knowledge translation tool, by referring to those factors that may impact on an athlete's injury experience, including the timing of the injury, cultural influences, athlete ambitions and goals, the sporting environment and the athlete's personal life. Returning to John's reflections offers insight into how he was embedding the stories into his own narrative:

I try my hardest to be fair and thorough when managing athletes post injury rehabilitation, I thought I have covered all the areas I was supposed to, but now I've realised there are so much more [sic] I have learnt and would be

able to offer to any injured sports athletes, such as treating each person as an individual, be open and frank with injured athletes about the injury. I must look at the big picture when dealing ...[with]...any injuries, such as their personality, ethnicity, education and personal beliefs towards life, sports and injury. Utilising a range of resources to facilitate meaningful attitude towards sports injury or any other challenges...they will be facing, empowering them with skills to...[be]...self aware and recognise their limitations and equally stay...positive.

Finally, as participants began to locate and integrate the research into their own narratives, one strand that was consistently interwoven across the learners, was the notion of promoting an athlete-centred perspective. Demonstrating that practitioners integrated the idea that an athlete's injury experience can include more than just the injured body part. Remaining consistent with John's examples here helps to demonstrate this point in the following exert:

As a Sports Therapist, I truly believe, I have the duty to offer the care and best treatments to the athletes whom I am working with. Quite often, injured athletes are not willing to tell how they feel/cope with the injury, especially in front of other people, or when they are still in the denial stage or not given any appropriate time/location/chances to express their feelings. As a healthcare person, I must facilitate and prepare the injured athletes to come up and be open about their injury, working together to optimise the injury rehab outcome.

***What would I do: reflecting on stories and hypothetical actions***

This theme describes how participants were able to collaborate their own experiences through the stories presented in the knowledge translation tool, promoting reflection on their own past behaviours and responses to injured athletes they had worked with. These reflections included a need to take action and apply practical skills gained from the knowledge translation tool, the need to consider athlete welfare, the importance of taking time and not rushing the rehabilitation process, the importance of facilitating conversations and being aware of the role SIRPs have on education athletes and coaches about the injury process.

Participants highlight understanding the need to take action and apply the practical

skills that have been developed in the knowledge translation tool. Highlighting how participants were locating and integrating their learning through actions such as developing action plans, providing specific timeframes, being realistic about delivery and setting clear goals. For example, Caroline highlighted how she would take action by applying the TULIP acronym:

I would include more open ended questions and not just assume to understand how he was feeling. Eye contact whilst doing this is very important!! The idea of including some TULIP based questions that I could ask to figure out the extent of any anxiety around the injury is great. I'll definitely have to be mindful of this to see how the injury is impacting psychologically. I would be ask more questions and know that the benefits of talking may take over the time used for physical treatment especially if the person is extremely anxious and taking an extra 5 minutes at the end to go over any the diagnosis so the patient is clear.

Taking a different approach, Brian suggested he would “Clearly explain the condition, how and why it might have developed...Set realistic goals and expectations...Clearly outline a plan and a management strategy ...[and]...address any psychosocial issues after questioning them”. Practitioners also commented on the importance of considering the athlete’s objectives. As Peter highlighted “It is however important to facilitate and understand any specific goals or opportunities that the players identify”. An important point shared by Thomas, who went on to suggest how he would approach the situation:

It may be worth taking a full training history and injury history from the patient. It may also be important to discuss her current training goals and how her training can be changed to accommodate the injury.

The knowledge translation tool also prompted participants dialogue that reflected on the importance of athlete welfare, considering the welfare of characters in the narrative and how these related to sport in general. As Rob highlighted:

Overall I think there is a lot of pressure on David to compete and that the coaches don’t quite take into account the players welfare, they are only concerned with the performance of their team. This can be quite a common thing in sport...I had an athlete that had a concussion in the week before the

final week of the season. Having to explain to him that his season would be over due to the concussion protocol was difficult as he really wanted to play (he was trying to get a professional deal as a scholar). It didn't feel good having to tell him he couldn't play for the rest of the season as I knew how much it meant to him. The player was trying to find ways of getting around it but I had to be firm with my decision and not allow him to play. Finding a way to explain this to him was difficult.

Location and integration of this idea was described by practitioners through reflections on the importance of ensuring that athletes did not push their physical rehabilitation forward too quickly, that athlete concerns were addressed, and that athletes were aware of potential psychological difficulties after injury on emotions that may be experienced in rehabilitation. John described how David's story (culture module) helped to remind him of athlete vulnerability after injury, and how an athlete may hide their responses to injury in a performance environment:

The paragraph in the story 'As a group we've often joked that if you shook a gymnast we would rattle from the amount of painkillers inside our bodies. This is a daily part of competitive sport, most athletes I know tend to take a couple of painkillers, tape up your injuries nice and tight and way they go. For us its just another day at the office' has grabbed my attention, simply because it has reminded me how hard for the athlete to face day in day out for training, and equally how vulnerable they are under the mask/behind the door when they are working hard and chasing their dream.

Participants described that these challenges may be integrated and navigated by facilitating conversations with both the athlete and coach. Such as actions that would provide the space and time to discuss decisions with athletes, ensuring they were not rushed or pressured into premature or unnecessary actions. As Caroline highlights, "It's quite obvious an athlete will try to ignore and go through the pain, so you need to find out what is happening underneath before they push it too far and cause irreversible damage." Rob offered support for this to ensure the athletes were protected from external support, for example,

I think initially the practitioner handles it well, saying that they won't make any decisions until the X-ray. I would have explained everything to the

athlete on his own before the coaches weren't in the room so that he didn't feel the pressure from the coaches and how they would feel towards the injury, it would just be focused in what David wanted.

As the above quotation demonstrates, in reading the provided stories participants were able to reflect on how specific character managed the situation, as well as considering their own practice. Further, participants also imagined how their hypothetical actions might positively impact on the athlete, thereby demonstrating depth in their reflections.

The final aspect participants reflected on within this theme was their role in educating the athlete. Participants described an enhanced understanding of their education role that focused not only on understanding the injury experience but also explaining it to the athlete and/or the coach. The area of suggested educational focus differed between athletes and coaches. With athletes SIRPs typically reflected on how they could help in identifying other areas of improvement, ways to self-manage the injury, and how to manage the increase in free time caused by injury. For example, Rob highlighted how he would

...try to educate players on injuries and how to deal with them...There is more to an injury than just the player, there are a lot of other influences e.g. coaches, upcoming competition, medical staff. Education is important to make the athlete and the surrounding stakeholders understand injury.

While Caroline highlighted a need to make sure that she could develop educational "...resources for athletes to learn more about the anatomy and physiology of the injury" and John highlighted how he would use the injury to "...prescribe more specific/accurate rehab programmes and... offering some extra self-learning/caring/developing sources/books/websites etc". As the above statements demonstrate, participants were able to locate the theoretical knowledge and identified actions that they could integrate as part of their existing narrative.

Interestingly, participants also reported a need for further dialogical conversation with coaches to be educated on the detrimental nature of negative cultures and the need to understand the practitioner's role, responsibilities and limitations. For example, Sue highlighted how they wished "...the technical coaches and hierarchal coaches to take your course! This will hopefully support them see how damaging their behaviour can be whilst also giving them an insight in to the pressures an athlete has in performing." The

challenge faced by SIRPs around their role was summarised by Peter:

It is often an assumed that coaches understand we are doing what's best for the athletes in our professional opinions, however this often seems to be forgotten when it does not fit the coach's thoughts/plans. Especially when the athlete reports how well they are doing and how keen/confident they are to return.

Throughout this theme participants demonstrated that through the stories they were able to promote a style of dialogue that enabled them extract and understand the theoretical insights, before moving to identify practical actions and how they may integrate these ideas into their professional practice.

### ***What can I do? Practical applications***

The third theme summaries the identified actions, insights and/or skills practitioners felt they could use or needed to continue to develop within their own practice as a result of the knowledge translation tool. These focused on four key areas, developing communication and building rapport, developing resources, strengthening their networks and the need to continually reflect and be aware.

Practitioners outlined a desire to work on their communication and rapport-building skills, including paying more attention to athlete body language, developing a patient and calm manner, listening to the athlete more, demonstrating sympathy, demonstrating empathy, offering the athlete reassurance, and being trustworthy. For example, John described:

In the future, from the best interests of managing athletes with injury, I strive to be open and frank towards athletes and encourage them to be the same, listen to the athletes, recognise their pain is real, and be aware of their pain should not be part of the sport. I will be looking out for both visible and less visible cultures which held by the athletes when managing their post injury. And I will be more proactive in the network of managing the athletes, such as talking to the coaches and suggesting what is the best for the injured athlete...be patient/empathic and allowed the injured athlete to express their feelings/worries about their injury. I can gently prompt them to tell me what they [are] afraid of and their expectation towards injury rehab. Once I have



gained the trust/friendship with them, they will be more open/honest with me, then I will be able to prescribe more specific/more accurate rehab programmes.

Participants also described that being introduced to quick summaries acronyms in the video animations offered potential in guiding future discussions with athletes about responses to their injury. As Caroline summarised, “the idea of including some TULIP based questions that I could ask to figure out the extent of any anxiety around the injury is great.” Similarly, Peter highlighted the potential of adopting the TULIP acronym as part of their screening process:

I think using these TULIP areas would be of valuable use when either screening athletes to give more structure. Following this using the TULIP method to discuss different aspects in a more structured way and in depth way. Then use any answers/discussions to compare athlete responses/understanding post injury to any pre injury screening

Participants also expressed an interest in developing resources for the athletes they worked with around the psychological aspects of sport injury. This was offered in the form of developing summary cards and pre-designed exercise sheets. As one practitioner highlighted, they would use the information from the course to “...create an exercise prescription sheet for my players so that they can go away with their exercises written down and they won’t forget them” Similarly, Sue highlighted how they would use the card resources included in the module:

Love the cards!...I'd like to look at printing off the cards that were shown in the video and possibly sharing these with the athlete i.e. "the way you are feeling is normal, other athletes have displayed similar feelings, and a bunch of scientists have given us some tools to help you - take a look".

Participants also highlighted a desire to strengthen the networks around them to help psychologically support the athletes they work with. This focused on “creating a list of referrals” and using “...the governing bodies to support myself and the athlete”. However only Peter described the option to reach out to qualified psychological practitioner, stating that he would use the insights collected to help “...identifying areas of concern for the athlete or areas that may be better discussed with our club

psychologist.”

The final area of development within this theme was a need to continually reflect and assess their own practice and behaviours. This was particularly the case around being aware of practitioner limits and boundaries. As John highlighted, “As [a] healthcare provider, knowing own limits of delivering appropriate treatments, and not be afraid of asking for help if needed”, while Caroline described that “It's ok to refer if you feel out of your depth”.

### **7.3.2 Evaluating the knowledge translation tool**

This section presents the content analysis of the interviews and survey data from the final course feedback. Overall four main themes are presented: course mechanics, course activities, resulting factors, and future recommendations.

#### ***Course mechanics***

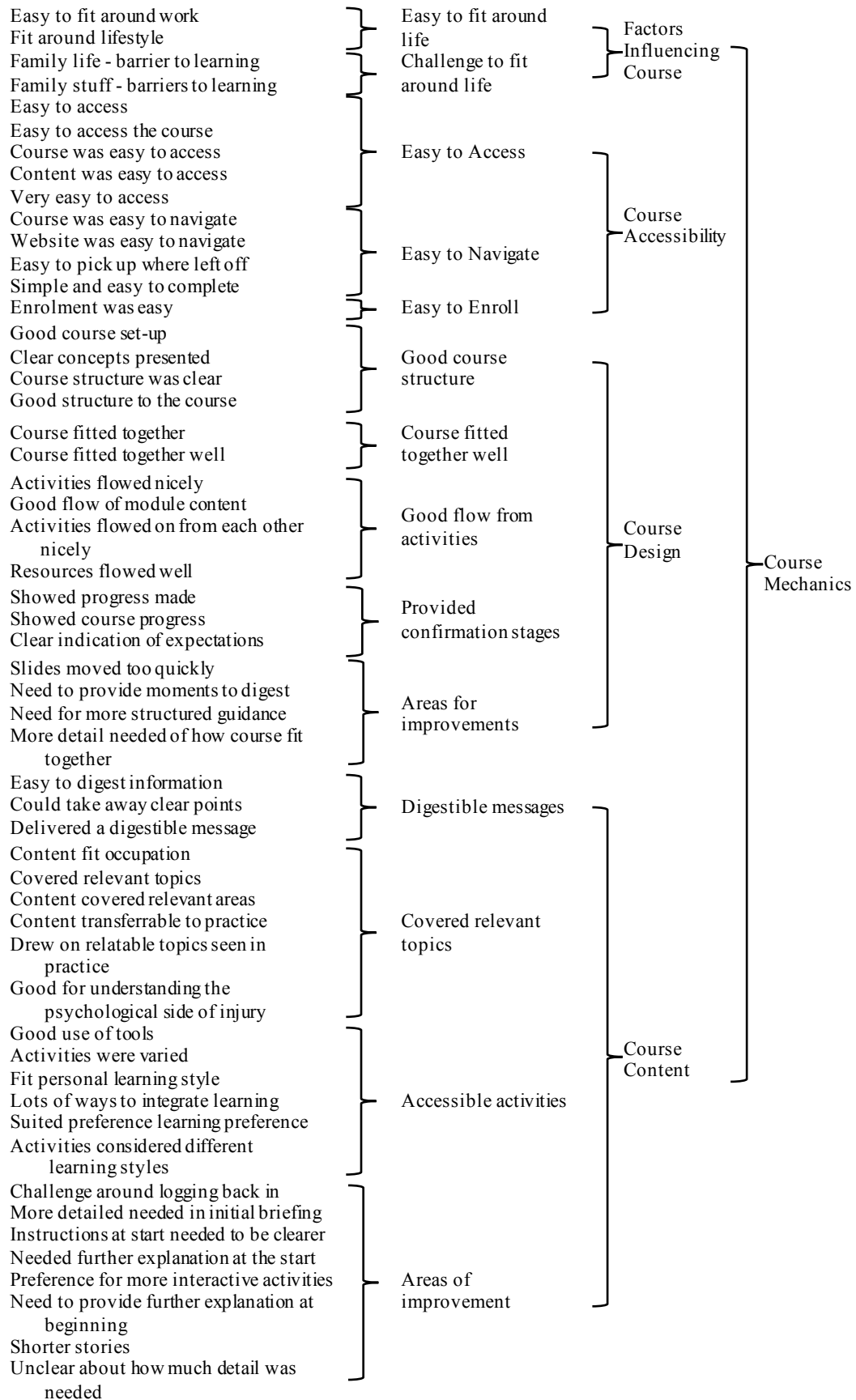
The first theme, *course mechanics*, summarises SIRPs experience of using and navigating the online course. This included insights into the course accessibility, course design and course content, presented in figure 14.

In terms of course accessibility, practitioners highlighted that they found the course easy to access, easy to navigate and easy to enroll. For example, “I found it pretty easy to access the course”, “the website was clear and easy to navigate”, “the course was very easy to follow”, and “enrolment onto the course was very easy”. When considering the course design, participants described that they found the “three modules fitted together overall”, they were “...able to fit into work diary” and that the course “flowed nicely”. Practitioners also liked that “it showed the progress...[they]...had made on each of the [modules]” and that “the flow was great starting with a scenario, providing video content and asking us to reflect on them...” as it made them “...think about our own practices and how we can improve this.” For example, one participant offered detail around why they liked the course:

Yeah, to be honest I thought it was just about perfect to kind of fit into a bit of evening kind of reading if I've got maybe five minutes. I normally try and maybe do around 30 to 40 minutes reading maybe three times a week and I found that it was pretty much perfect, I could fit into one evening of work if that made sense.

**Figure 14.**

*Course Mechanics*



Participants described that “[they] liked how it showed the progress you had made on each of the courses” and “I like the fact that I can take away some really kind of brief clear kind of points and concepts away...that I’m happy to remember.”

Participants also highlighted several areas of improvement in the course design. These included a desire for more detail in how the course fitted together, for example one participant wanted further context explaining “...what the course was and how the information (including case studies) was going to be presented would have been useful. I am not sure that I answered the initial questions appropriately because of that.” Similarly, one participant wanted “...moments to allow...[them]...to read the information rather than having to regularly pause it”, while another participant highlighted how they wanted more guidance from the start:

I think that...[the course]...was easy to navigate, however, maybe an ‘explainer video’ at the start would have been useful as I almost felt as though I was thrown in at the deep end. Further context to what the course was and how the information (including case studies) was going to be presented would have been useful.

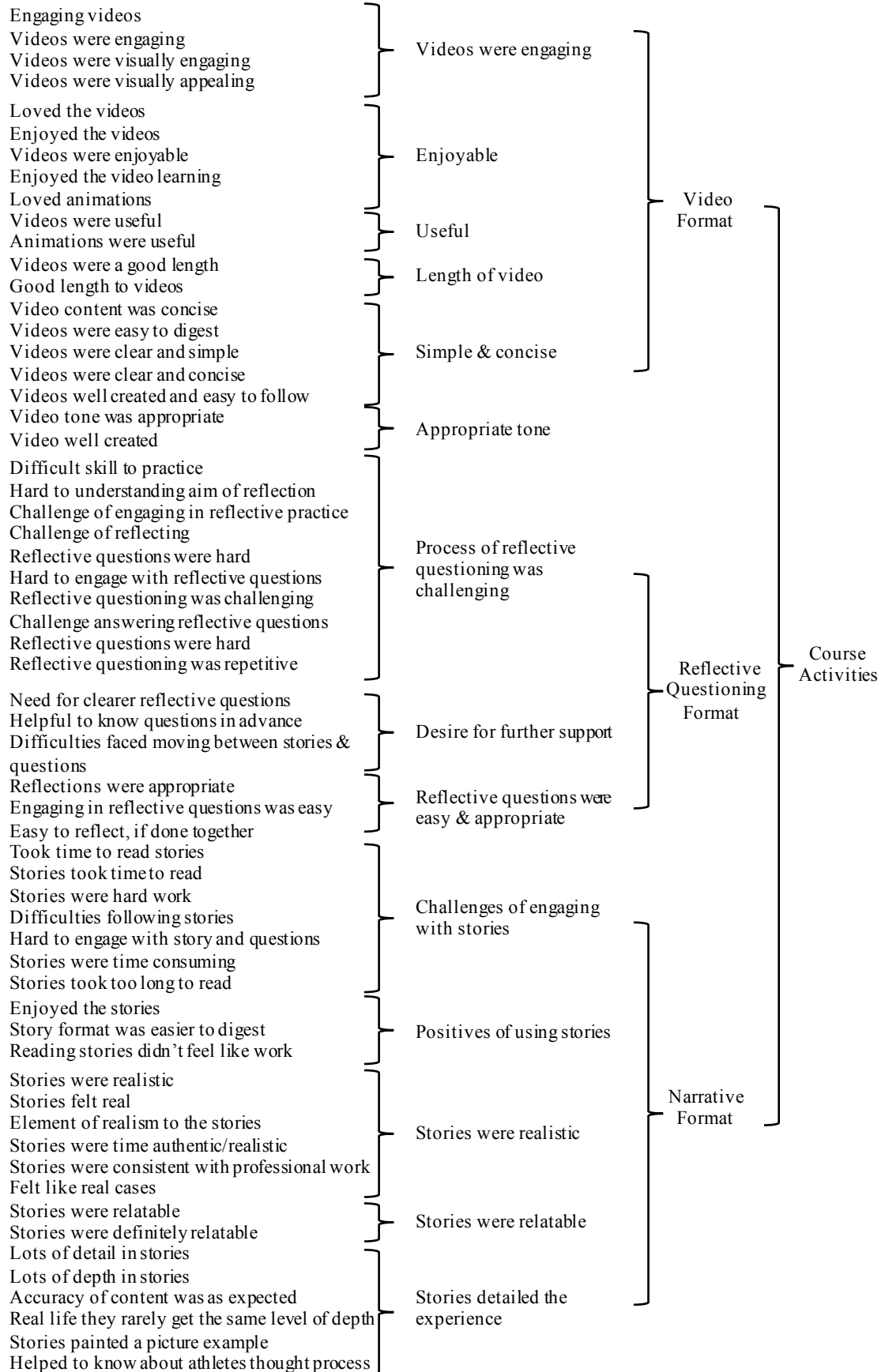
Finally, participants felt the course delivered digestible messages, covered relevant topics and used accessible activities. One participant commented “They were relatable topics that I see in practice so good to reflect back on them.” While another stated, “There wasn’t a huge amount of information on the on the slides...[which]...made it just really easy to digest and just not worry about taking too much information away for those key points.” Similar to the course design, practitioners highlighted a desire for further detail in the briefing for each module. As summarised by one participant: “When landing on the course page, the protocol for what was needed felt vague when starting the course. I wasn’t sure what I needed to click first”

### ***Course activities***

This theme summarises how SIRPs found engaging with the three different forms of activities: animations, reflective questioning and athlete narratives. Consequently, the results were developed under each of these three areas, with practitioners consistently favouring the animation format. These are illustrated in figure 15.

**Figure 15.**

*Course Activities*



When considering the animations, participants reported that these animations were engaging, enjoyable, useful, simple and concise, were of a good length and pitched at an appropriate level. When asked what they liked about the videos, one participant stated that they liked that “the message, colours and timeline made the viewing easy, consumable and memorable”, where another reported:

I often I think I probably prefer watching or listening to a podcast or watching a video than reading a journal article. So you know that was great to have that because I can just kind of, I just myself prefer watching things, I'm probably more a bit of a visual learner than kind of reading.

For participants, accessing the research content through an animation enabled them to understand the topic in a clear and simple manner, while remaining visually appealing and appropriate. Similarly, the athlete narratives were met with praise, albeit not to the same degree. For the practitioners who found the stories engaging, they reported that the athlete narratives were realistic, relatable and detailed. For example, one practitioner highlighted that:

Yeah definitely, I really enjoyed...[the stories were]...a nice kind of element to...the learning aspect. It was I think a kind of inherently probably compared the stories to someone that I've kind of dealt with previously. So it was nice to have a bit of a comparison going on. And I think when you read in a story, it doesn't almost seem like you're kind of, it's not reading a textbook. So I think if I was to, I think I'd find reading a story a lot more kind of flowing and an easier than reading a textbook with just kind of information or case studies or anything like that. Because in a story format, I found that quite just easy to sit there just as if you're reading your book or anything.

Of the three activities, the reflective questioning was considered to be the most challenging. Practitioners highlighted that they found the process challenging and expressed a desire for further support. As one practitioner highlighted, they found “...[the reflective questioning]...a little bit confusing and repetitive”, while another felt that “...some of the questions could have been clearer e.g. the how would your story change, could have been more specific”. Others reported that they found it hard “...to understand whether I was reflecting upon the story or on my own experiences...” while another

reported finding it “...difficult in terms of understanding what themes were etc.” Furthermore, one participants insights served to highlight how not all activities are suited to every learner, ‘Due to my learning disabilities, it took me a long time to read the story, by the time I got to the reflective question, I’d forgotten the essence of the story.’ Of the sample population only two practitioners highlighted that they found the process to be” “quite easy” and that the “...reflective questions were appropriate”

When considering participants impressions of the reflective questioning and athlete narratives combined, participants reported further challenges moving between the two tasks. Due to the length of time it took to read the stories, practitioners reported challenges moving between the two activities as they found they often forgot aspects of the story. This is summarised by one of the participants:

As I am a visual and practical learner, I did find there was a lot of text to read in one go. I would have liked some of the text to be broken down better in the stories in order to take in the content better.

### ***Overall outcomes***

This theme summarised the overall outcomes of practitioner involvement in the course and identified two main sub-themes: course experience and improvements to professional practice. These are illustrated in figure 16.

Overall, the course was very well received by participants who reported that they found the course enjoyable and a useful experience. For example, “[the course] was great”, “I enjoyed the course overall”, “I found the information useful and interesting”, “I found [the course] useful”, “I loved being able to have this experience” and “[I found the course] really really useful, helpful with my career basically”.

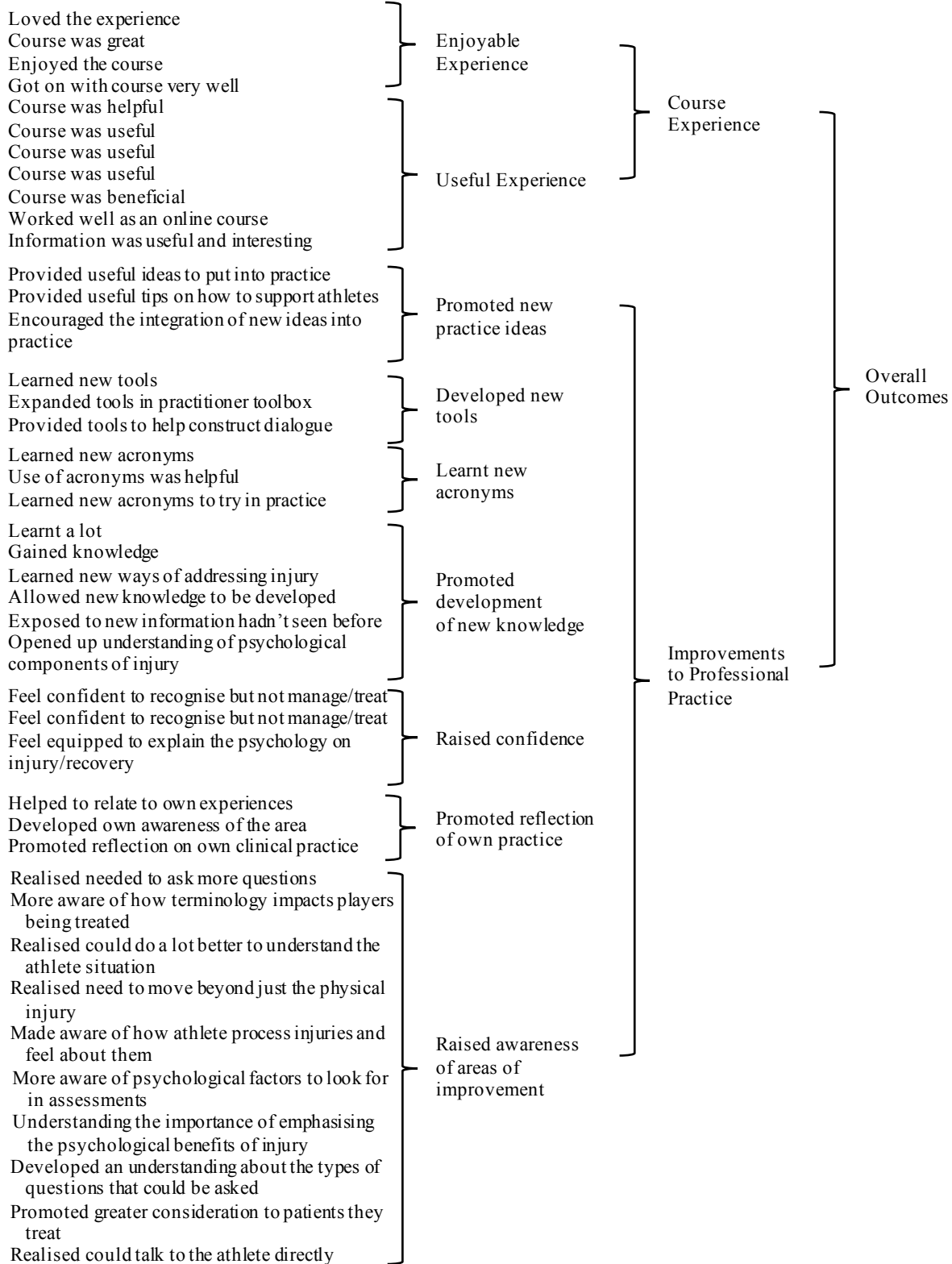
For many participants, engaging in the course enabled them to improve their own clinical practice. Areas of improvement included learning new tools, developing new idea, learning new acronyms, promoted development of new knowledge, raised their confidence, prompted them to reflect on their own practice and help to raise their own awareness of areas they needed to improve. As one participant put it “Definitely, I feel that it’s made me more aware of how athletes are psychologically and how they may process injuries or feel about them.” Likewise, on participant described:

Now I know I could do a lot better...I could use TULIP to get a better picture. Now I have the knowledge to do that...I ask the so what

questions...so what aims they have and stuff like that.

**Figure 16.**

*Overall Outcomes of Practitioner Involvement*



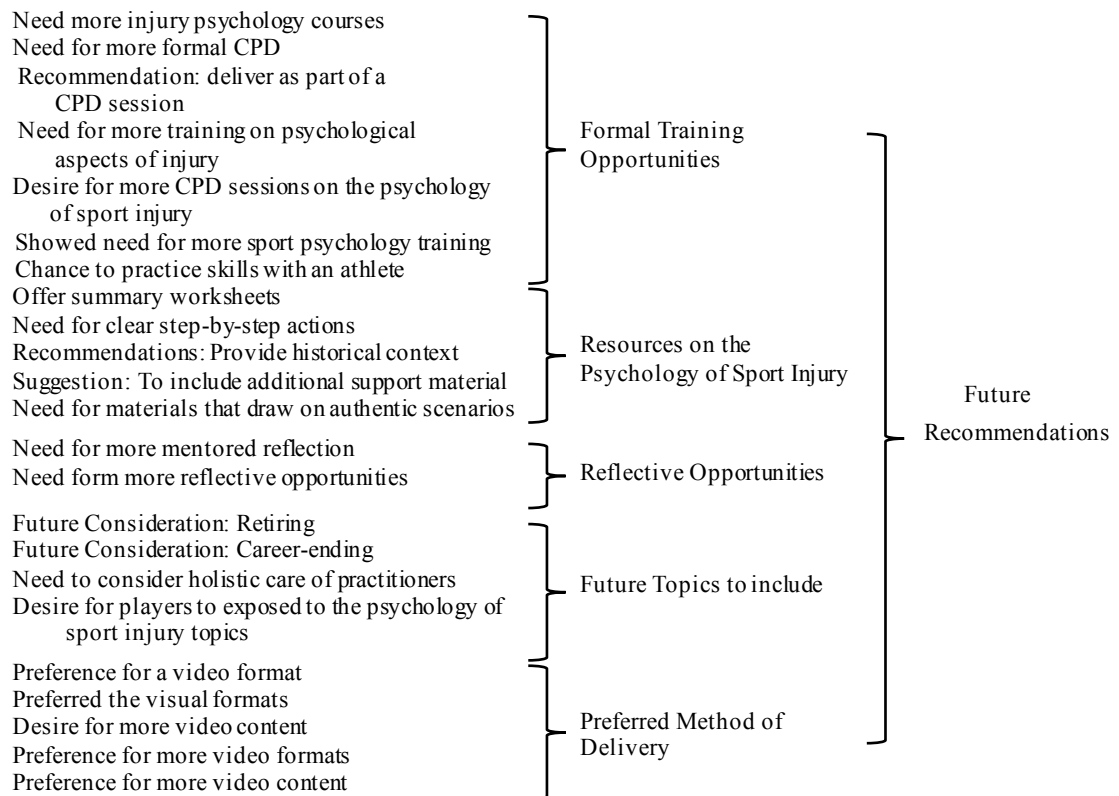


### *Future recommendations*

The final theme focused on future recommendations for the course, Participants identified four areas for future improvement: a need for more formal training opportunities, more resources on the psychology of sport injury, preferences for activities and future topics. These are illustrated in figure 17.

**Figure 17.**

#### *Future Recommendations*



Participants highlighted the need for more formal professional training opportunities around the psychological aspects of sports injury. One participant highlighted that they felt the area around psychological support during injury needed clearer pathways and certification, “I think that there should be a clear pathway and certification of psychology in sport for practitioners which needs to be maintained through CPD, much like a first aid certificate.” Another practitioner highlighted that training should also extend to athletes as well:

I think psychology should be implemented into CPD session more regularly either by webinars, group sessions or providing reading materials to clubs

or individuals. I think this should also be introduced to the players so they feel more comfortable to approach us if they feel they want to talk about the contents highlighted.

When considering the resources available, participants suggested the use of summary sheets, clear step-by-step actions and information around the historical context of sport injury and how it has changed over the years. As one participant offered, “The need for the scenarios to be even more realistic is evident so that practitioners can relate them to themselves. More scenarios could be given with clear steps-by-step actions to take.” As suggested by participants, clear links between the knowledge offered through stories and video animations and applied practice are imperative. Practitioners must be able to relate to content, reflect on their own experiences, and have clear action points.

Looking at the preferred method of delivery, participants desired more visual and video content. As one participant highlighted, “I would change the written stories to something like a short video with real people. That way you would be able to get more information from facial expressions, body language etc. it may also make it more memorable.” Similarly, another participant stated:

For me, I would prefer a video element to reconstruct the story to add visual and make it more relatable in the sporting environment. May give more scope for people to realise they could be doing a similar thing e.g. pressure to return to play. When seeing it rather than reading the stories.

Although participants highlighted that they felt the reflective questioning to be challenging one participant did call for more mentored reflective questioning as a method of delivery. Stating, “More informative education around these reflections and what can you do better” Such suggestions open the question of whether SIPRs need more guidance on how to engage in reflective practice.

Finally, participants suggested future topics including information around athletes “retiring” and athletes sustaining “career-ending” injuries. Alternatively, one participant would like to see the course “...introduced to the players so they feel more comfortable to approach us if they feel they want to talk about the contents highlighted”, while another wanted to see practitioner self-care included:

I think that we often forget about ourselves as practitioners. I sometimes find it hard being the person that more often than not gives negative news,

whether that be to an athlete or a coach. Having strategies to cope with these sorts of things would be really good!

#### **7.4 Discussion**

A central premise of knowledge translation is the idea that knowledge is not only created but is also translated into useable insights that can be applied to the communities they were developed for. Whilst sport injury research often focuses on the creation of knowledge, the effective selection, adaption and implementation of knowledge translation tools are often over looked. This significant knowledge step was addressed in this study by examining how synthesised research evidence, in the form of narrative stories, graphical animations and reflective questions, was used as a knowledge translation tool. Informed by the KTA framework, Goodson and Gill's (2011) narrative pedagogy and the insightful work of Gabbay and Le May (2011), the results highlight the value of using narratives as a pedagogical knowledge translation tool for supporting SIRPs understanding, reflections and future actions around the psychosocial implications of sport injury.

Considering why this was the case, insights from the thematic analysis highlighted three distinct stages of development as SIRPs progressed through each module: understanding, interpretation and analysis and integration. Reviewing Goodson and Gill's (2011) process of narrative pedagogy, the three stages of development identified, tie in with the cycle of narrative learning. After narrating the stories, SIRPs began engaging in the collaborative aspect of narrative learning. As Goodson and Gill (2011) highlight during this phase stories and interpretations are exchanged, reconstructed and revisited. It was during this phase that SIRPs highlighted their understanding around the topic area, by describing that there was more to the injury phase than just the physical aspect of injury.

Following this, SIRPs began to interpret and analyse their own stories and the stories presented to them. In line with the process of narrative pedagogy this was akin to the location and theory phase. Insights collected from the animations were reviewed and subsequently began bridging their own stories and experiences with the theory. It was during this phase, that SIRPs began to develop more of a conceptual understanding of the topic in question. The final stage SIRPs progressed through focused on the identification of actions, insights and/or skills practitioners they felt they could use or needed to develop within their own practice as a result of the course. Similarly, to Goodson and Gill's (2011)

suggestions the focus of this phase was on how their practice could be reworked and the new knowledge integrated in to their practice. For many of the participants, this was demonstrated as actionable steps in their learning that they took away.

Similarly, the insights also offered support for Greenhalgh and Wieringa's (2011) notions of knowledge and Gabbay and Le May's (2004; 2011; 2016) "mindlines". Encouragingly, throughout the course practitioners drew on a combination of the presented research insights (episteme), their existing practitioner skills (techno) and practical wisdom (phroensis) to re-conceptualise their understanding of the psychological implications of sport injury. It was through these processes that SIRPs collectively reinforced their internalised guidelines. Reviewing the stages collectively, having SIRPs engage in the process of narrative pedagogy not only provided a catalyst for developing new knowledge but it also encouraged SIRPs to critically reflect on the actions presented and consider how they could move beyond them.

In addition to contributing to our understanding of the pedagogical implications of the work, important practical insights also emerged from this work. At a fundamental level, this study helped to identify SIRPs opinions and perceptions of how the course and the methods used were practically interpreted. The general feedback on the course was that it was well received by SIRPs. Insights created from the content analysis revealed several influencing factors for this. Of note, this included providing digestible messages, confirmation of progress, covering relevant topics and accessible activities. While ensuring the course structure fitted together well, flowed nicely, was easy to navigate and easy to access. These practical insights are particularly appealing as they offer further support for SIRPs preferences in methods of knowledge translation that are easily accessible, delivered away from a classroom, can be undertake in their own time and delivered online (see chapter five). Whilst this differentiations to the more traditional methods of delivery (e.g., workshops, seminars, mentoring and coaching) offered by Arvinen-Barrow et al. (2008), it does support the insights offered by Armstrong and Weidner (2010) and Heaney et al. (2015) that SIRPs preference for training delivered online or from distance.

## **7.5 Summary**

In summary, this chapter has focused on monitoring knowledge use and evaluative outcome stages of the KTA Framework. Placing specific attention on testing the

implementation and evaluation of the created knowledge translation tool. Utilising a thematic analysis, participant reflections were collated to identify three overarching themes: the increased importance of looking at the beyond the physical injury, what would I do: reflecting on stories and hypothetical actions, bridging the stories with their own understanding and what can I do: practical applications. In addition to the thematic analysis, a content analysis was conducted on the participant feedback to highlight four main evaluative themes: course mechanics, course activities, resulting factors and future recommendations. The next chapter focuses on the final stage of the KTA framework to outline how the collected knowledge insights could be sustained going forward.



## **Chapter Eight: Conclusions**

## **8.0 Overview**

The closing chapter of this thesis begins by highlighting how this thesis extends the current literature and considers what new knowledge and/or debates have been developed through this programme of research. Following this, the markers of quality used to judge this research are re-visited, providing my own perspective on how these markers have been met. The final sections of this chapter will then consider future and practical implications, limitations of the research, and possible future research directions

### **8.1 How Does this Thesis Extend the Current Literature?**

This thesis aimed to explore how insights from the psychosocial sport injury literature could be adapted to improve the translation of knowledge to SIRPs. Since Wiese, Weiss, and Yukelson's (1991) first study investigating athletic trainers' attitudes and beliefs towards the application of psychological skills to injury rehabilitation, our understanding of the role played by SIRPs in supporting athletes throughout injury has continued to grow (e.g., Arvinen-Barrow et al., 2014; Clement et al., 2013; Gordon et al., 1998; Heaney, 2006; Kampoff et al., 2010; Lafferty et al., 2008; Larson et al., 1996; Niven, 2007). Consequently, it is important to ask, 'what does this thesis contribute to existing knowledge and debate?'

In chapter four of this thesis, a comprehensive meta-synthesis of the psychosocial injury literature was undertaken. While previous research has synthesised a small number of research papers in the area (e.g., Arden et al., 2013; Brewer, 2010; Forsdyke et al., 2016; Geldhill et al., 2018; Heaney et al., 2015; Ivarsson et al., 2017; Podlog & Eklund, 2008), this study provides the first extensive review of the qualitative sport injury literature. Drawing together the final 54 articles not only offered an understanding of existing research across psychosocial domains but also identified new knowledge. The seven overarching themes developed provide an indication of the complexity of the injury experience and contemporary research directions in studying responses to sport injury. Further, each theme uses quotations from the literature to ensure that the participant voice does not become lost during the synthesis process. However, the use of the meta-synthesis does not simply summarise existing research but aims to extend it. In this case, the meta-synthesis not only helped to identify the breadth of published content available on the psychosocial aspects of sport injury but also demonstrated that existing applied research (e.g., Heaney et al., 2015) often does not encompass the full range of knowledge



available. In line with this criticism, the meta-synthesis ensured that the subsequent development of the knowledge translation tool was founded on evidence-based practice.

Chapter five aimed to involve SIRPs in the development of the knowledge translation tool by understanding what previous experiences and knowledge they had around the psychosocial aspects of sport injury, as well as the barriers they faced in accessing research driven knowledge. Whilst previous studies have provided some initial indications that SIRPs have limited access to professional training on the psychological aspects of sport injury (e.g., Clement & Shannon, 2009; Heaney et al., 2017; Kamphoff et al., 2010; Larson et al., 1996), no previous study had empowered SIRPs by actively involving them in the design of professional training activities. This study differed in that it directly asked SIRPs about their preferences. Drawing on SIRPs input throughout the knowledge translation process not only helped to establish the types of professional training tasks SIRPs would prefer, but also helped identify SIRPs' preferences for professional training activities that are time accessible, practically accessible and audience accessible.

The insights from chapter five provide some support for the existing literature. For example, the need for practically accessible training (i.e., actionable insights, communication skills, goal settings) has been strongly advocated in the practitioner literature (e.g., Clement & Shannon, 2009; Heaney 2006; Heaney et al., 2015; Hemmings & Povey, 2002; Larson, et al., 1996). However, results also extend previous findings by highlighting SIRPs' preferences for methods that could be undertaken in their own time and delivered online (e.g., Armstrong & Weidner, 2010). Such insights contradict the findings of Arvinen-Barrow et al. (2008), who demonstrated support for more traditional face-to-face methods of training (e.g., workshops, seminars) and may reflect the growing time pressures and demands on SIRPs, as well as the increased use of web-based learning over the past decade. Further, SIRPs also highlighted the importance of audience accessibility (i.e., using the appropriate tone, avoiding academic jargon), something that is only tentatively mentioned within the literature where the confusion faced around the use of different terms have been raised (e.g., Harris et al., 2005; Heaney et al., 2012; Heaney et al., 2015), rather than ensuring the need to pitch the training at the right tone and ensure this is devoid of academic jargon.

In chapter six, focus was placed on the creation of a knowledge translation tool designed to assist SIRPs in understanding the psychosocial aspects of sport injury. This chapter demonstrated how narrative pedagogy can be used as a flexible structure to help

frame pedagogical activities. Whist McMahon et al. (2018) highlighted the potential of applying Goodson and Gill's (2011) framework for narrative learning, this thesis extends their initial work to consider how a variety of creative methods (e.g., animations, creative non-fiction stories, reflective questioning) can be integrated alongside the framework to encourage sense-making in SIRPs. More specifically, a real strength of this work lies in the novelty of using animated video as a pedagogical activity. To date, this is the first study to use animated videos as a method for dissemination within the field of sport injury, but also in the wider sport and exercise psychology field.

Chapter seven focused on implementing the developed knowledge translation tool. Providing a two-part evaluation, that considered (a) whether SIRPs were able to engage with the psychosocial insights offered and (b) how the material was being delivered. This study extends our current understanding by demonstrating the utility of the developed evidence-based knowledge tool as a vehicle for disseminating research evidence on the psychosocial aspects of sport injury to SIRPs. Results highlighted that SIRPs were able to move beyond just understanding the material offered, to instead reflect, integrate and apply the research evidence after engaging with the knowledge translation tool. Beyond the pedagogical offerings, this study used several methods of evaluation for the knowledge translation tool, which allowed for both the content and process to be reviewed. This extends previous work in this area (e.g., McMahon et al., 2018) as it goes beyond evaluating the outcome of the knowledge translation tool, to instead review how the subject matter was delivered and how this delivery could be improved moving forward.

The work throughout this thesis was underpinned by the KTA framework, consequently, it is imperative to consider how each stage of this framework added to our knowledge and understanding. Table 11 reflects back on each stage of the KTA framework and considers whether the aims of the research have been met.

**Table 11.**

*Summary of PhD Research Findings*

Chapter	KTA Component	Research Aims	Key Findings
Four	<i>Knowledge creation funnel: knowledge inquiry, synthesis &amp; products/ tool</i>	What does the published qualitative literature contribute to our ability to describe and understand an athlete injury experience?	<p>Seven key themes were identified:</p> <ul style="list-style-type: none"> <li>• Athletic identity</li> <li>• Injury culture</li> <li>• Underlying Factors Underpinning Response to Injury</li> <li>• Navigating the injury process</li> <li>• Coping with Injury</li> <li>• Social support</li> <li>• Benefits of injury</li> </ul> <p>Overall insights:</p> <ul style="list-style-type: none"> <li>• Prominent focus on knowledge creations</li> <li>• Traditional realist tale</li> <li>• Lack of methodological transparency</li> <li>• Publications in sport psychology/sport sociology journals</li> </ul>
Five	<p>Identify problems and select knowledge</p> <p>Adapt knowledge to local context</p> <p>Assess barriers to knowledge use</p>	<p>What previous experience and knowledge do SIRPs have around the psychological aspects of injury?</p> <p>What barriers do SIRPs face in accessing research driven knowledge around the psychological aspects of sport injury?</p>	<p>Overall insights</p> <ul style="list-style-type: none"> <li>• 56.3% had engage in a CPD activity on the psychosocial aspects of sport injury</li> <li>• Preference for self-directed activities and formal &amp; educational activities</li> <li>• <i>Enabling factors</i> included: delivered in an accessible format (e.g., clear, digestible), timely and quick to access (e.g., podcasts, tweets) and delivered by credible experts</li> <li>• <i>Constraining factors</i> included: lacked a practical focus, difficult to understand (e.g., used jargon, confusing, too academic) and took too long to identify relevant information</li> </ul> <p>Proposed content to target specific topics and practical skills</p> <ul style="list-style-type: none"> <li>• Desired information around specific topics (e.g., referral, coping) and practical skills (e.g., interpersonal skills, promoting growth)</li> <li>• Preference for course to be online using relatable methods (e.g., stories, conversations)</li> </ul>

Six	Select, tailor & implement intervention	How can the qualitative insights be adapted & applied to create an appropriate knowledge translation tool to assist SIRPs?	<p>Overall insights</p> <ul style="list-style-type: none"> <li>• Goodson &amp; Gill's (2011) spiral of narrative pedagogy provides a flexible, multidimensional framework for underpinning knowledge translation activities</li> <li>• Provides the opportunity to include both visual and written methods that <i>show</i> rather than <i>tells</i></li> <li>• Provides a framework for presenting the complexity of injury</li> <li>• A variety of creative methods can be used to translate knowledge to SIRPs, including animations and creative non-fiction stories</li> <li>• Included methods can be adapted based on SIRPs preferences</li> </ul>
Seven	Monitor knowledge use Evaluate outcomes	What effect did the developed knowledge translation tool have on SIRPs understanding of the psychological aspects of injury?	<p>Overall insights</p> <ul style="list-style-type: none"> <li>• Demonstrated the utility of the developed knowledge translation tool</li> <li>• SIRPs demonstrated an ability to reflect, integrate and apply the research</li> <li>• SIRPs found the course engaging, enjoyable and useful</li> <li>• Course summary: delivered digestible messages, offered confirmation of progress, easy to use, accessible and covered relevant topics</li> <li>• SIRPs offered support for the animations</li> <li>• SIRPs found the reflective questions challenging</li> </ul>

## 8.2 The Use of the Knowledge to Action Framework

This thesis provides a number of methodological implications for qualitative researchers both within the field of sport injury and more widely (e.g., other sport and exercise disciplines, policy makers, professional bodies). This thesis advances our methodological understandings of the knowledge translation process through the application of the KTA framework (Graham et al., 2006). The adoption of a systematic approach to knowledge translation, has demonstrated how the KTA framework can be used to guide and manage the process of creating, implementing and evaluating tools within sport injury. Reflecting on the practical application of using the KTA framework to underpin this thesis has

highlighted a number of lessons learned, which will now be discussed.

### **8.2.1 Lessons Learned**

While numerous authors have called for a better link between research and practice in the sport sciences (e.g., Bekker et al., 2018; Holt et al., 2018a; Keegan et al., 2017) few sport related studies have engaged with the knowledge translation process. Consequently, it is not only important to consider the value the KTA framework, it is also important to critically review the practical application of using the framework guiding this programme of research. Using the KTA framework allowed me to identify and plan what steps I took at each stage in the research process, incrementally accumulating knowledge to develop the knowledge translation tool. This provided an ongoing frame of reference throughout the PhD and provided structure to the research process. Whilst the stages of the KTA framework provide a step-by-step process that helped to map the knowledge translation process, at times this was practically daunting. Knowledge translation research, and by extension the KTA framework, is still in its infancy within the sport sciences. Consequently, at times it was challenging to understand how to apply literature that focused on medicine into a psychological and sporting context. With the limited research available on the practical application of the KTA framework within sport or psychology, at times, it felt like I was navigating uncharted territory without a compass. The seeming lack of clarity around terms, process and frameworks made trying to locate the KTA framework in the knowledge translation literature a challenge, as terms are frequently used to mean different or similar constructs. Consequently, this required me to source research insights outside of sport and into the wider health, medicine and science domains.

The KTA framework does not suggest prescriptive guidelines for how to complete each phases of the research. Whilst Graham and Tetroe (2010) do suggest that specific instructions for each phase can be found by consulting the individual theories the KTA framework was derived from (should researchers want guidance), they did not specifically prescribe or populate each phase of the KTA framework. This was to ensure that user actions were not explicitly confined by the framework, providing users the flexibility to tailor the process to their situation. This flexibility allowed for a range of novel methods to be considered and used when designing the intervention. Not only does this provide an opportunity to produce some exciting and innovative resources, through

active collaboration it enables the researcher and knowledge users to create a feasible tool and/or product.

Despite these strengths, working through the KTA framework can be a lengthy and time-consuming process. Each of the studies included within this PhD individually took at least eight months to complete as a part-time student. Stages of the research process may present unexpected challenges along the way, for example I had not anticipated the number or amount of time it would take to analyse the articles produced from the meta-synthesis. Likewise, the time I would take to design, create and produce a clip of video footage five minutes long. While the KTA framework endorses collaboration, working with different participants (e.g., injured athletes, SIRPs) on different schedules and priorities presents its own set of unique challenges. For example, recruiting SIRPs was particularly challenging, not because they were uninterested but because of the difficulty they faced trying to start and/or complete the course. Due to the clinical demand placed on SIRPs on a day to day basis, engaging in professional development work may be secondary to the need to see clients, engage in self-care, and/or look after family once the work week has ended. Consequently, researchers need to have realistic expectations about how long the knowledge translation process may take from start to finish.

A central tenant of the KTA framework is collaboration between researchers and key stakeholders. As Graham et al. (2006) suggest, the encouragement of two-way collaboration, is what results in action. Generic knowledge taken directly off the shelf is seldom used in practice without being critiqued or adapted for the intended audience (Graham et al., 2006). Engaging with SIRPs throughout the research programme not only ensured that barriers and challenges were successfully navigated, but also ensured that the developed tool was practically feasible. For example, the existing literature highlighted a preference for more traditional methods of delivery (e.g., seminars, workshops). However, engaging with SIRPs and asking for their preferences around delivery highlighted an alternative preference (e.g., online, self-managed, easily accessible) that may have been overlooked if they were not included in the development of the tool. To ensure effective partnerships are fostered, careful attention needs to be given to who best to partner with going forward. Therefore, it is worth considering if there is a benefit to partnering with professional bodies, rather than individuals. For example, a large number of practitioners recruited for the final intervention study, were as a result of contacting professional organisations that were willing to publicise the knowledge translation tool.

Finally, the cyclical process of the KTA framework encourages ongoing evaluation as researchers progress through the framework. Not only does the later phase of the action cycle specifically encourage users to evaluate the final designed knowledge translation tool, but it inadvertently encourages on going evaluation and reflection. For example, by breaking the knowledge translation process down into manageable phases it encouraged me to reflect and evaluate each study of this PhD as the programme progressed, ensuring that the research aims, and questions were being met throughout the process.

### **8.2.2 Recommendation**

Overall, the need to understand and effectively navigate the gap between knowledge and practice is essential if new knowledge is to be effectively disseminated to SIRPs. The KTA framework offers the domain of sport injury, and the wider sport and exercise sciences, a feasible framework from which to facilitate knowledge translation. This thesis demonstrates how a series of research studies can be mapped to the framework, the importance of collaborating with SIRPs throughout the process and the value of utilising a framework to guide knowledge translation efforts.

### **8.3 Reflecting on the Quality of the Research**

Earlier in this thesis the reader was invited to judge the quality of this PhD as a whole. As this thesis closes it is important to re-visit and provide some of my own reflections on the markers of quality that were originally provided in chapter three to demonstrate the rigor of this work.

**1. Worthy topic: is the topic relevant, timely, significant, interesting and/or evocative?** The worthiness of the topic may be demonstrated first through the results of the meta-synthesis (chapter four), which demonstrate the growing number of qualitative studies published on the psychosocial aspects of sport injury. Given the steady publication rise, the topic is clearly relevant and significant. Yet the inability of SIRPs to access this resource (chapter five) provides an evocative perspective, demonstrating that created knowledge is not reaching its intended audience. Likewise, the unique combination of methods employed to deliver knowledge (chapter six) and the mechanism used to deliver the course (chapter seven) presents a relevant and interesting approach to knowledge translation.

**2. Rich rigour: does the research use sufficient, abundant, appropriate and**

**complex theoretical constructs, data and time in the field, sample(s), context(s) and data collection and analysis processes?** Throughout this thesis, justification is provided for all of the critical decisions made. In particular, one strength of this thesis is that the design of the educational tool (chapter seven) was underpinned by a rigorous meta-synthesis (chapter four), appropriate end-user involvement (chapter five) and a narrative pedagogy (chapter six). Thus, the research underpinning this tool is based on complex theoretical constructs, specific knowledge from the field, and a rigorous analysis of the existing research.

**3. Credibility: Is the research marked by thick descriptions, concrete detail, explication of tacit knowledge and showing rather than telling?** The credibility of this thesis is exemplified through the use of creative non-fiction stories (chapter six) to develop the knowledge translation tool. The creation of these stories included thick descriptions, provided by participants who had sustained injuries, and gathered through the use of diaries and multiple interviews. The aim of the creative non-fiction stories was to show rather than tell. By combining the research insights with thick athlete descriptions, it not only performed a communicative function but also opened up the dialogue about injury. More specifically, the pedagogical process of reflecting with the stories not only assisted the process but helped to reflect and integrate SIRPs existing tacit experiences and knowledge.

**4. Resonance: Does the research influence, affect or move particularly readers through aesthetics and evocative representations?** Resonance is demonstrated largely throughout the developed knowledge translation tool (chapter seven). By combining the construct of narrative pedagogy, with the creative non-fiction stories, animations, and reflective questions (chapter six), SIRPs demonstrated that the research influenced and affected them. For example, feedback highlighted how SIRPs found themselves comparing the athletes in the stories to individuals they had worked with, as well as highlighting empathy and a sense of realism about the presented situations. Evaluation of the knowledge translation tool evidenced that SIRPs questioned and challenged the purpose of the stories before finally reflecting and integrate their insights in to existing experiences.

**5. Significant contribution: Does the research provide a significant contribution conceptually/theoretically, practically, morally, methodological and heuristically?** This thesis has made an original and significant contribution to the literature in a number of ways. First, this thesis may strengthen the qualitative literature



on the psychosocial aspects of sport injury by consolidating existing literature, identifying the methodological shortcomings, and providing potential future research directions. Second, this thesis moves the field forward through the use of the KTA framework to underpin and guide the research process, thereby documenting how this framework can be used in practice within a sporting context. Finally, by collaborating with end-users and using the meta-synthesis findings, this thesis demonstrates how knowledge translation tools may provide educational resources that are both practically relevant and underpinned by peer reviewed literature.

**6. Ethical: Was the research conducted in an ethically strong and moral manner?** The ethical nature of this research may be demonstrated through the ongoing steps undertaken to ensure broad procedural ethics were maintained throughout. This included ensuring consent was obtained from all participants and that participant confidentiality (e.g., pseudonyms) and anonymity (e.g., removing identifying insights) were maintained when participant data was represented. Furthermore, throughout the research programme I integrated the practice of being culturally responsive (e.g., being aware and sensitive to participant cultures), reflexive (e.g., being sensitive to self, others and situations), and relational (e.g., maintaining a balance between the research and the participants) ethics. Alongside these steps, specific data protection (e.g., encrypted email accounts) and data security (e.g., embedding an SSL certificate on the PSI course) steps were undertaken in chapter seven to ensure participants remained safe throughout using the educational tool.

**7. Meaningful coherence: Does the research achieve what it sets out to do? Does it use methods and procedure that fit the stated goals? Does it meaningfully interconnect the literature, research question, finding and interpretations?** Coherence of the research was demonstrated throughout this thesis. The KTA framework provided the backbone of this thesis, offering guidance and helping to map the research from start to finish while interconnecting the literature with end-user collaborations. What may be most important, in judging meaningful coherence, is the final knowledge translation product. From the start, the aim of this thesis was to bridge the gap between knowledge and practice around the psychosocial aspects of sport injury. The final evaluative study of this thesis demonstrates the effectiveness of this research programme in successfully moving knowledge from creation to practice. Completion of the knowledge translation tool represents a grueling body of research, that I am extremely proud of. Not only does it demonstrate that I have met the research goals set out, but it

also represents a resource that I feel has a lot of potential to help SIRPs around the psychosocial aspects of sport injury in the future.

#### **8.4 Future Research and Practical Implications of the Research**

As this thesis draws to a close it is also important to consider the future research and practical implications that have arisen as a result of this research.

**1. Sport injury research should carefully consider where and how research is disseminated:** As demonstrated in chapter four, while the number of sport injury articles published has consistently increased, these tend to be published in the same six journals. Even though sport specific journals offer a platform for disseminating insights to sport practitioners, this publication strategy may limit the access to new knowledge for any health, medical or rehabilitation practitioners operating outside the boundaries of sport. Attention also needs to move beyond research focusing on knowledge creation and look to include knowledge translation. Whilst the importance of creating knowledge is not to be overlooked, placing attention on the knowledge translation from the beginning of a research project will ensure that insights are actionable and accessible to different audiences.

**2. Qualitative sport injury researchers need to be reflexive of how they are engaging with and developing rigorous practices:** With the growth of qualitative methods being used in the sport injury domain, there is an inherent need for researchers to be mindful that the quality of research remains consistent, particularly around maintaining philosophical transparency. As chapter four highlighted, only five of 54 studies discussed their philosophical position, with only two of these studies mentioning both the ontological and epistemological positions guiding the research. A lack of clarity around a researcher's philosophical position not only has implications for judging the quality of future sport injury literature, but also has important implications for the practical and analytic choices made during the research process. Without this philosophical information the reader is left to either assume a philosophy that is congruent to the methodological work, or to attempt to judge the quality of the research without considering the underpinning philosophy. Both of these options are flawed and consequently, the sport injury researchers must endeavour to include philosophical information. As Smith and McGannon (2017) suggest clear philosophical and methodological decisions should be carefully considered and woven throughout

published research insights (Smith & McGannon, 2017).

**3. Bridging the gap between research and practice:** The aim of this thesis was to develop a knowledge translation tool that translated research knowledge to those working in practice. Yet the delivery of this course was focused at an individual level. While professional organisations provided some support in advertising the final study, in future, organisations such as the Health Care Professionals Council, The Society for Sport Therapists, and the Chartered Society of Physiotherapy might act as collaborators in the research process and the development of the knowledge translation tool. Chapter five demonstrated that participants' previous CPD on the psychosocial aspects of sports injury was scant and that there were no formal requirements that focused on psychology. Thus, it is not only individual practitioners who need to move beyond focusing on the physical aspects of injury, but also organisations themselves. Working together with researchers may provide organisations with opportunities to develop more structured CPD with a requirement to engage in psychological training. This thesis offers a framework as to how knowledge translation tools may be developed for such work and future opportunities.

**4. Clarity surrounding professional boundaries:** This thesis highlights the lack of clarity and guidance surrounding the professional boundaries of SIRPs and the psychosocial aspects of sport injury. While each professional organisation provides guidance on topics that should be taught at an undergraduate level, these use very broad terms (e.g., understanding, recognising, referring). Perhaps most poignantly, there is also no guidance on working within the psychosocial competencies and the role of SIRPs. As shown in study five, SIRPs are using psychosocial knowledge gained through their undergraduate studies and tacit knowledge acquired from the field. Thus, it is worrying that these skills are being used without formal professional guidance and/or access to contemporary journal articles. Moving forwards, clearer guidance could be provided by professional organisations to clarify boundaries of competencies for SIRPs, as well as when and how to refer. Clearer boundaries would then ensure the appropriate development of effective networks and professional training activities (knowledge translation tools) that are tailored towards SIRPs professional requirements. In study five, some of the knowledge SIRPs requested included information on mental health, coping, psychological difficulties and athlete management. Such suggestions may indicate the uncertainty SIRPs have about their role in helping athletes following sport injury. There is therefore an inherent need to ensure that SIRPs and educators have the necessary clarity surrounding the role of SIRPs to ensure that effective and appropriate development

resources are created.

## **8.5 Limitations**

As with any programme of research, this thesis is not without its limitations. Several of the limitations stemming from this programme of research centre around the practical development of the knowledge translation tool.

First, a key resource in designing and creating the animations was the use of the Adobe Creative Cloud software package. Whilst universities may subscribe to the Adobe Creative Cloud software package, access may be limited. For example, universities may only allow access to the suite on campus or if a student is engaging in a specific course. Therefore, gaining access to the programmes can be a costly affair (e.g., from £16.22/mo to £30/mo). Alongside the cost implication, considerable time and energy may be taken to understand and master each of these programmes. Whilst I was fortunate to be well versed in the Adobe Creative Cloud programme, it still took considerable time and energy to ensure the animations were of a high standard.

Second, when considering the resources needed to design and develop the website, this drew on an entirely different set of skills. Whilst steps were taken to ensure the costs were kept low for this project (i.e., piggybacking of an owned domain, building a free website using Wordpress, using a free LMS plugin), there were a number of inevitable financial outlays needed to effectively replicate a similar set up. These may include, but are not limited to purchasing the domain name, purchasing an SSL certificate (if an existing one cannot be transferred), dedicated domain hosting and additional plugin costs. Alongside the financial outlays, setting up an effective website does require an understanding of WordPress, the dedicated LMS and an understanding of coding languages (or at least access to someone who can help). All of which take time and patience to understand and manoeuvre.

Moving away from the specifics of developing the knowledge translation tool, an additional limitation was how the part-time nature of this PhD influenced the developed tool. Developing the knowledge translation tool took a considerable amount of time to design and develop, which made it difficult to develop something that was contemporary. Whilst every attempt was made to include new and emerging literature, the extensive time it took to design the tool, meant that the knowledge translation tool may be dated by the time it is even launched.

## 8.6 Future Research Directions

Based on the findings from this PhD thesis there are a number of potential future research directions. First, future research might use a longitudinal approach to consider whether the new knowledge gained from the knowledge translation tool was successfully integrated in to practice. For example, follow-up interviews might be conducted with those who have completed the tool at four weeks, six months and one year after. These interviews could also explore what insights SIRPs took back to their practice and how the application of these insights changed over time.

Second, future research could investigate how SIRPs absorb and integrate new knowledge. There is a growing body of literature within the domain of health that suggests existing methods of evidence-based research do not account for how clinical practitioners assess and absorb knowledge (e.g., Gabbay & Le May, 2011; Greenhalgh, 2009; Greenhalgh & Wieringa, 2011). Instead suggesting that clinicians rely on a set of internal guidelines, defined as mindlines, acquired over time and practice (Gabbay & Le May, 2011). Therefore, future research may look to understand how SIRPs develop their own mindlines, but also how training can be used to facilitate these insights.

Third, future research needs to investigate alternative creative knowledge translation methods to educate on the psychosocial aspects of sport injury. Of the three methods adopted within the knowledge translation tool, SIRPs reported a preference for the use of animated video. In the world of social media, YouTube, podcasts and TED Talks, people are routinely engaging with content that is concise and succinct and this may be reflected in SIRPs preference for video content. Using animated video allowed for SIRPs to gain insights from the literature in a brief amount of time, as well as proving a unique way to disseminate information. However, there are multiple types of animations (e.g., cartoon, acted scenes) and consequently the type of animation used in the programme of research represents one way of using video, rather than the 'best' way to disseminate research insights.

Finally, future research might also focus on extending the work undertaken within this thesis by exploring the impact of collaborative online spaces and narrative pedagogy as a tool for practitioner learning. A central feature of the process of narrative pedagogy (Goodson & Gill, 2011) and the notion of mindlines (Gabbay & Le May, 2011) is the creation of safe, collaborative spaces for practitioners to discuss their experiences. With the rise of new technologies (e.g., Zoom, social media platforms, Unhangouts) and the

recent Covid-19 pandemic, there are now more opportunities available for promoting online support communities than ever before. Therefore, investigating the opportunity for online pedagogical communities and spaces may help to shed light on the impact collaboration has on practitioner learning.

## **8.7 Final Conclusions**

Overall this research has provided a detailed account of how knowledge translation can be used to facilitate SIRPs' understanding of the psychosocial aspects of sport injury. This thesis moves from providing an academic synthesis of the literature through to a useable, educational tool that suits the requirements of the end-user. Consequently, the findings of this thesis highlight the importance of moving beyond knowledge creation to effectively translating research through a variety of creative methods. My hope for this PhD is that these insights reduce the gap between knowledge and practice, and that through the use of knowledge translation SIRPs can feel confident in understanding their role in addressing the psychosocial difficulties experience by some athletes after sport injury.

## **Appendices**

## Appendix A

#	Authors	Journal	Purpose	Participants	Methodology	Data Collection	Data Analysis	Measures of Quality
1	Marshall, Donovan-Hall & Ryall (2012)	Journal of Sport Rehabilitation	Explore athlete's perceptions of the factors affecting adherence to a physiotherapy intervention	8 athletes (5 male, 3 female) between 21-39	Phenomenology	Semi-structured interviews	Thematic analysis	Peer debriefing
2	Roy, Mokhtar, Karim & Mohanan (2015)	Asian Journal of Sports Medicine	Examine the cognitive appraisal & psychological response in an injured athlete, specifically the personal & situational factors	18 year old male cyclist	Narrative	Interviews	Narrative analysis	Triangulation member checking
3	Gould, Udry, Bridges & Beck (1997)	The Sport Psychologist	Identify coping strategies & factors thought to facilitate recovery in elite skiers who suffered season-ending injuries	21 US skiers (11 male, 10 female), $\mu$ age = 23.9	Qualitative	Semi-structured interviews	Content analysis, frequency analysis	Triangulation
4	Wadey, Evans, Hanton & Neil (2012)	British Journal of Health Psychology	Understand how athletes high & low in hardiness responded to & coped with major life events & injury itself, over time	10 athletes (6 male, 4 female) between 20-23	Qualitative	Semi-structured interviews	Composite sequence analysis	Peer debriefing, member checking



5	Hammond, Lilley, Pope, Ribbans & Walker (2013)	Qualitative Research in Sport, Exercise & Health	Explore decision-making & attitudes surrounding playing with injury in professional footballers where their currently injured & playing matches	9 male footballers between 24-32	Existential-phenomenological	Semi-structured interviews	Content analysis	Member checking
6	Udry, Gould, Bridges & Beck (1997)	Journal of Sport & Exercise Psychology	Examines a) the psychological reactions to season-ending injuries; b) long-term benefits derived from the experience of incurring a season-ending injury	21 US team skiers (11 male, 10 female), $\mu$ age = 23.9	Qualitative	Semi-structured interviews	Content analysis, frequency analysis	Triangulation
7	Carson & Polman (2012)	Physical Therapy in Sport	Understanding the emotions & coping strategies utilised when returning to competition following ACL reconstruction	5 professional male rugby union players between 18-27	Longitudinal	Semi-structured interviews, self-report diaries	Content analysis	Member checking, peer debriefing, negative case-analysis
8	Ruddock-Hudson, O'Halloran & Murphy (2012)	Journal of Applied Sport Psychology	To understanding AFL footballer's psychological responses to injury	43 pro male Australian football players between 18-36	Qualitative	Semi-structured interviews	Thematic analysis	Peer debriefing, member checking
9	Evans & Hardy (2002)	Research Quarterly for Exercise and Sport	Enhance the interpretability & meaningfulness of the findings emerging from a 5-week goal setting intervention study with injured athletes	9 athletes (2 female, 7 male) between 19-39	Qualitative	Semi-structured interviews	Inductive analysis	Member checking, peer debriefing

10	Wadey, Evans, Evan & Mitchell (2011)	Journal of Applied Sport Psychology	Examine the antecedents & mechanisms underlying the perceived benefits following sport injury	10 male team sport athletes between 20-25	Qualitative	Semi-structured interviews	Casual networks, comparative analysis	Member checking
11	Mankad, Gordon & Wallman (2009)	Journal of Clinical Sports Psychology	Examine the underlying perceptions of emotional climate within the context of competitive elite sport	9 athletes (5 male, 4 female) between 19-29	Qualitative	Semi-structured interviews	Inductive analysis	Interrater reliability
12	Clement, Arvinen-Barrow & Fetty (2015)	Journal of Athletic Training	Document athlete's psychosocial responses during the different phases of injury rehabilitation	8 Div.2 collegiate athletes (4 male, 4 female) between 18-22	Qualitative	Semi-structured interviews	Content analysis	Triangulation member checking, peer-debriefing
13	Arvinen-Barrow, Massey & Hemming (2014)	Journal of Athletic Training	Explore injured athlete's views on the role of SMPs in the psychosocial aspects of sport-injury rehabilitation	10 pro male football & rugby players between 19-25	Phenomenology - IPA	Semi-structured interviews	IPA	Peer debriefing, member checking, triangulation
14	Bianco (2001)	Research Quarterly for Exercise and Sport	Identification of athlete perceptions of issues relevant to the social support process during recovery from sport injury	10 national team alpine skiers, current/retired, between 22-45	Not specified or clear	Interviews	Content analysis	Member checking, peer debriefing
15	Bianco, Malo & Orlick (1999)	Research Quarterly for Exercise and Sport	Understand the psychological aspects of injury rehabilitation & recovery from illness	12 current (n=8) & retired (n=4) Canadian ski team, $\mu = 19-32$	Phenomenology	Interviews	Content analysis	Member checking, peer debriefing

16	Levy, Polman, Nicholls & Marchant (2009)	International Journal of Sport & Exercise Psychology	Investigate participants experiences of adhering to sport injury rehabilitation program	6 recreational athletes (4 males, 2 females), age range = 24-38	Phenomenology - IPA	Semi-structured interviews	IPA	Bracketing, peer debriefing, member checking
17	Gould, Udry, Bridges & Beck (1997)	The Sport Psychologist	Identify stress sources in athletes after season-ending injuries & the differences in stressor between unsuccessful & successful post-injury performance	21 US alpine/freestyle skiers (11 male, 10 female), $\mu$ age = 23.9	Qualitative	Interviews	Content analysis frequency analysis	Triangulation
18	Evans, Wadey, Hanton & Mitchell (2012)	Journal of Sport Sciences	Examine the stressors experienced by injured athletes over three phases of recovery & the differences in stressors experienced by team vs individual sports	10 male athletes from rugby union (n=5) & golf (n=5) between 18-21	Not specified or clear	Semi-structured interviews	Pattern-coding, within-case analysis	Member checking, peer debriefing, expert audit review, triangulation
19	Johnston & Carroll (1998)	Journal of Sport Rehabilitation	Examine emotional responses to injury as well as their situation & temporal contexts	16 injured & recovered athletes (11 males, 5 females), between 18-60	Grounded Theory	Unstructured interviews	Constant comparative method	Bracketing (diary), peer debriefing, theoretical memos
20	Ruddock-Hudson, O'Halloran & Murphy (2014)	Journal of Applied Sport Psychology	Examine the psychological response to injury in AFL players	8 Australian football players, between 19-29	Longitudinal	Semi-structured interviews	Thematic analysis	Triangulation member checking

21	Abgarov, Jeffery-Tosoni, Baker & Fraser-Thomas (2012)	Journal of Intercollegiate Sport	Understand athletes social support experiences during the injury, looking at social networks, exchanges, & appraisals	12 swimmers (5 females, 7 males), between 20-28	Not specified or clear	Semi-structured interviews	Constant comparative method	Member checking, interrater reliability
22	Grindstaff, Wrisberg & Ross (2010)	Perspectives in Public Health	Understand the meaning collegiate athletes derive from their injury experience	5 elite athletes (2 male, 3 female) between 18-22	Phenomenology	Interviews	Inductive analysis	Member checking
23	Bele, Östenberg, Sjöström & Alricsson (2015)	Journal of Exercise Rehabilitation	Examine players experience regarding shoulder injury & how it affects their return to play	5 elite volleyball players - 4 male & 1 female between 27-42	Qualitative	Semi-structured interviews	Content analysis	Not specified or clear
24	Pizzari, McBurney, Taylor & Feller (2002)	Journal of Sport Rehabilitation	Investigate the experience of ACL rehabilitation & identify what influences adherence as perceived by athletes	11 athletes (4 male, 7 female) between 21-52	Not specified or clear	Diaries, semi-structured interviews	Thematic analysis	Member checking, peer debriefing
25	Tracey (2003)	Journal of Applied Sport Psychology	Examine the emotional response of collegiate athletes recovering from injuries over three phases of injury recovery	10 div.3 male & female athletes between 20-22	Not specified or clear	Semi-structured interviews	Interpretive analysis	Peer debriefing

26	Ford & Gordon (1999)	Journal of Personal & Interpersonal Loss	Describe athlete's responses to rehabilitation, their experience of loss & the assistance required to facilitate their recovery	4 athletes (2 male, 2 female)	Qualitative	Semi-structured interviews, summary notes	Content analysis	Member checking, peer debriefing
27	Russell, & Wiese-Bjornstal (2015)	Sports	Examine the psychosocial experiences & responses of distance runners who experienced microtrauma injuries	10 long-distance runners (8 female, 2 male) between 19-37	Narrative	Interviews	Modified narrative analysis	Peer debriefing
28	Podlog & Eklund (2006)	Journal of Applied Sport Psychology	Examine the experiences of competitive athletes returning to sport after a serious injury over a period of up to 8months	12 elite/semi-pro athletes (7 male, 5 female) between 18-28	Longitudinal	Semi-structured interviews	Constant comparative method	Triangulation member checking, peer-debriefing
29	Gayman & Crossman (2003)	Journal of Sport Behaviour	Determine the relationship between timing of injury onset in the sport season & the importance of the season on athlete reactions	20 basketball players (10 male, 10 female) between 20-23	Qualitative	Structured interviews	Constant comparative method	Peer debriefing, member checking, analytical memos
30	Podlog, Banham, Wadey & Hannon (2015)	The Sport Psychologist	Examine athlete experiences & understandings of psychological readiness to return to sport following a serious injury	7 athletes (3 females, 4 males) between 18-30	Qualitative	Focus group, semi-structured interview	Constant comparative, inductive analysis	Peer debriefing, member checking

31	Granito (2002)	Journal of Sport Behaviour	Describe the athletic injury experience between male & female athletes	31 intercollegiate athletes (16 women, 15 male) between 18-21	Qualitative	Interviews	Inductively then via cross-case analysis	Reliability coefficient between researcher & assistant
32	Rose & Jevne (1993)	The Sport Psychologist	Use a grounded theory to examine psychosocial processes of sport injury	7 athletes (3 females, 4 males) between 19-34	Grounded Theory	Interviews	Constant comparative method	Bracketing, memos, peer debriefing, thick description, member check, triangulation
33	Thing (2005)	Nursing Inquiry	Consider the interface between the sports practitioner & the healthcare services, & on the relationship between lay people & healthcare professionals	17 female handball players between 19-38	Phenomenology	Observations, field notes, interviews	Phenomeno coding (Giorgi, 1985's principles)	Not specified or clear
34	Allen-Collinson (2005)	International Review for the Sociology of Sport	Examine the interactional & narrative elements of the rehabilitation journey. Focusing on the emotion management, work & intersubjectivity of the author & her training partner	2 middle-aged (1 male, 1 female), non elite - club, distance runners	Autoethnography (over a 2 year period)	Audio: training /injury logs, field notes	Principles akin to constant comparative method	Peer debriefing

35	Howe (2001)	International Review for the Sociology of Sport	Analysis of pain & injury based upon ethnographic research	Pontypridd Rugby Football Club - 36 players	Ethnography	Field notes, participant observations	Not specified or clear	Not specified or clear
36	Young, White & McTeer (1994)	Sociology of Sport Journal	Examines how participation in physically demanding sport both challenges/ reinforces dominant notions of masculinity	16 current/former male athletes	Not specified or clear	Semi-structured interviews	Systematic analysis to locate themes	Not specified or clear
37	Spencer (2012)	Qualitative Research in Sport, Exercise & Health	Examines impact of bodily injuries, how injury impacts upon their sport narratives, & how this impacts their masculine self	45 martial arts fighters (43 male, 2 female) & 3 martial arts practitioners between 18-39	Ethnography	Field notes, informal discussions, semi-structured interview	Not specified or clear	Not specified or clear
38	Vergeer (2006)	Psychology of Sport & Exercise	Explore how injury was organised in the athlete's mind & how these changed during the recovery process	1 28-year-old male rugby player	Case Study	Semi-structured interviews over 20 weeks	Inductive analysis	Analytical memos, peer debriefing,
39	Pike (2005)	International Review for the Sociology of Sport	Evaluate the extent to which non-orthodox care is an authentic alternative to traditional medical approaches & how such treatment facilitates the presentation of self as both 'athlete' & 'female' at a time when identities are challenged injury	12 rowers (female), 5 coaches (male)	Ethnography	Semi-structured interview, participant observations	Thematic analysis	Not specified or clear

40	Wainwright, Williams & Turner (2005)	Health	Outline an understanding of the experiences of embodiment of the injured dancer.	20 career dancers/ex-dancers	Ethnography	Interviews observations	Grounded coding	Not specified or clear
41	Markula (2015)	International Review for the Sociology of Sport	Investigate semi-professional Canadian contemporary dancers' perspectives of their injured bodies	14 semi-pro female dancers, 5 other dance roles, between 18-30	Qualitative	Semi-structured interviews	Deleuzian theoretical concepts	Not specified or clear
42	Thing (2006)	Scandinavian Journal of Medicine & Science in Sports	Examine strategies for treatment & prevention to gain new knowledge about the relation between sport, injury & the technology of sports medicine	17 female handball players between 19-33	Ethnography	Semi-structured interviews, observations, field notes	Not specified or clear	Not specified or clear
43	Hockey (2005)	Sociology of Sport Journal	Examine the importance of "identity work" for the maintenance of athletic identity in the face of prolonged injury	2 middle-aged (1 male, 1 female), non elite club, distance runners	Autoethnography (over a 2-year period)	Audio: training /injury logs, field notes	Not specified or clear	Peer debriefing, member checking
44	Allen-Collinson & Hockey (2007)	Leisure Studies	Examine the role of identity work in providing continuity of athletic identity following sport injury	2 middle-aged (1 male, 1 female), non elite - club, distance runners	Autoethnography (over a 2 year period)	Audio: training /injury logs, field notes	Not specified or clear	Peer debriefing



45	Heijne, Axelsson, Werner & Biguet (2008)	Scandinavian Journal of Medicine & Science in Sports	Explore & describe patients experiences of the rehabilitation process after ACL reconstruction	10 patients (1 female, 9 male), between 23-41	Not specified or clear	Semi-structured interviews	Thematic analysis	Peer debriefing
46	Allen-Collinson & Hockey (2001)	Auto/Biography	Examine the importance of narrative activity in the construction of the injured & rehabilitated sporting body	2 middle-aged (1 male, 1 female), non elite - club, distance runners	Autoethnography (over a 2 year period)	Audio: training /injury logs, field notes	Constant comparative method	Peer debriefing
47	Gordon & Lindgren (1990)	The Australian Journal of Science & Medicine in Sport	Examine the holistic process of rehabilitating an elite fast bowler from a serious sport injury	1 male cricket bowler, international standard	Not specified or clear	Structured interviews	Not specified or clear	Member checking
48	Mainwaring (1999)	Canadian Journal of Rehabilitation	Develop a grounded model of psychological reaction to severe sport-related knee injuries	10 athletes (6 male, 4 female), between 20-29	Longitudinal	Multiple unstructured interviews, diaries	Analytical techniques	Triangulation peer debriefing, interrater agreement
49	Allen-Collinson (2003)	Sociology of Sport Journal	Understand the subjective experience of sporting injury, analysing the temporal aspects of sporting "injury time" & rehabilitation	2 middle-aged (1 male, 1 female), non elite - club, distance runners	Autoethnography (over a 2 year period)	Audio: training /injury logs, field notes	Not specified or clear	Peer debriefing

50	Fisette (2015)	Sociology of Sport Journal	Explore how embodied identity initially centered on their athletic identify and how their body-self changed following deteriorated physical conditions	1 female, 36 years old	Autoethnography	Vignettes	Not specified or clear	Not specified or clear
51	Dashper (2013)	Sociology of Sport Journal	Explores the authors responses to a horse-riding injury helping to illustrate the complex interactions between gender identity & sporting identity	1 female horse rider	Autoethnography	Emotional recall, systematic sociological introspection	Not specified or clear	Not specified or clear
52	Hunt & Short (2006)	Journal of Sport Rehabilitation	Explores athlete psychological perceptions of adhesive ankle taping	11 athletes (5 male & 6 female) between 18-23 years	Qualitative	Semi-structured interviews	Inductive content analysis	Triangulation
53	Podlog & Eklund (2009)	Psychology of Sport & Exercise	To explore high-level athletes' perceptions of a successful return to play following injury	12 elite/semi-pro athlete (7 male, 5 female) between 18-28	Longitudinal	Multiple semi-structured interviews	Constant comparative method	Analytical memos, empathetic stance, peer review, use of devil's advocate & member checks

54	Salim, Wadey & Diss (2015)	Journal of Applied Sport Psychology	To explain in depth how injured athletes high in hardiness are able to experience SRG, and why their low hardiness counterparts are unable to derive such positive changes.	20 athletes (6 female & 14 male), $\mu$ age = 23.7	Not specified or clear	Semi-structured interview	Composite sequence analysis	Member checking, peer debriefing
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## Appendix B

Code	
Author(s)	
Year	
Title	

Ontology / Empistemology	
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Research Question / Purpose	
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Orientation	
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Role of Researcher	
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Sampling	
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Data Collection	
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Data Analysis	
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Measure of Quality	
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Findings	
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Strengths / Weakness / Limitations	
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Other Considerations / Thoughts	
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## Appendix C

### Summary of Themes

Main Theme	Sub-Theme	Articles
Injury Culture	Normalising pain	5, 8, 11, 13, 22, 23, 28, 35, 36, 37, 39, 40, 41, 44
	Acceptance of risk	5, 11, 15, 39, 42, 51
	Pressure to play through pain and injury	5, 15, 17, 18, 20, 23, 28, 41
	Culture of Blame	2, 4, 5, 9, 21, 22, 25, 31, 35, 39, 40, 42, 46, 54
Athletic Identity	Fragmented athletic identity	1, 11, 26, 28, 31, 32, 33, 34, 36, 38, 40, 41, 42, 43, 45, 46, 50, 51, 54
	Restoring/reclaiming a fragmented self	11, 33, 34, 35, 36, 37, 39, 40, 43, 44, 46, 49, 50
Underlying Factors Underpinning Response to Injury	Emotions	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54
	Timing of the injury	3, 4, 5, 9, 11, 15, 19, 23, 25, 29, 31, 32, 47, 50, 53
	Uncertainty surrounding the injury	4, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 22, 25, 27, 28, 29, 32, 41, 42, 47, 48, 50, 51
	Security of roles and position in the team	2, 4, 5, 8, 11, 15, 25, 26, 28, 29, 35, 39, 41, 50
	Anticipated future impact	2, 5, 9, 11, 15, 17, 18, 20, 23, 24, 26, 28, 31, 34, 47, 50
	Loss	1, 3, 4, 5, 6, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 37, 47, 48, 50, 54
Navigating the Rehabilitation Process	Access to medical support	1, 3, 5, 7, 11, 13, 16, 18, 19, 21, 23, 24, 30, 33, 34, 35, 39, 41, 47, 48
	Nature of the rehabilitation process	1, 2, 3, 4, 8, 12, 15, 16, 17, 20, 24, 30, 32, 33, 53
	Physical progress and testing of the injury	1, 4, 6, 7, 8, 9, 10, 12, 15, 16, 18, 19, 20, 23, 24, 25, 26, 28, 30, 32, 33, 34, 38, 40, 42, 46, 47, 48, 50, 51, 53, 54
	Having confidence	1, 3, 4, 6, 7, 9, 10, 12, 15, 17, 19, 23, 30, 32, 45, 47, 52
	Being Patient	3, 7, 17, 23, 30
	Motivation	1, 3, 4, 5, 6, 7, 9, 12, 15, 19, 20, 23, 24, 28, 30, 32, 41, 45, 50

Coping with Injury	Applying psychological skills	2, 3, 4, 7, 9, 13, 15, 16, 20, 22, 23, 27, 28, 30, 34, 38, 44, 46, 45
	Using stories & memories from the past	4, 34, 43, 44, 49
	Religion	22
	Physical tasks & props	3, 4, 7, 19, 34, 39, 46, 52
	Avoidance strategies	3, 4, 5, 8, 9, 11, 20, 28, 41, 45, 54
	Maintaining a positive focus	3, 4, 6, 7, 9, 15, 24, 25, 26, 28, 32, 48, 50, 54
Social Support	Sources of social support	5, 9, 12, 14, 19, 20, 23, 24, 25, 47
	Emotional support	1, 3, 4, 7, 8, 9, 10, 12, 13, 14, 16, 17, 19, 20, 21, 25, 26, 27, 28, 30, 31, 32, 44, 47, 50, 51, 53, 54
	Instructional support	1, 3, 4, 8, 12, 14, 16, 21, 23, 25, 26, 39, 41, 45, 47, 53
	Tangible support	3, 4, 10, 26
	Fragility of relationships	1, 2, 3, 16, 18, 21, 30, 34, 39, 41, 54
Benefits of Sports Injury	Personal growth	3, 4, 6, 7, 8, 10, 20, 22, 23, 25, 26, 27, 28, 32, 45, 46, 47, 50, 54
	Sport growth	4, 6, 7, 10, 20, 22, 26, 27, 28, 32, 54
	Social growth	3, 6, 10, 46, 54

## Appendix D

### Practitioner Opinions on CPD Resources

Thank you for taking the time to help with my research. The following questions should take no more than 15 minutes to complete.

This survey forms one strand of a research project that is focused on developing a continuing professional development (CPD) resource for healthcare practitioners who support athletes through the injury experience.

The questions will ask you about your experiences with professional training, there are no right or wrong answers to these questions, I am interested learning as much as possible from your own experiences and opinions of professional training resources. The information gained from your responses to these questions will be used to inform the development of future professional training resources to assist practitioners working with injured athletes. Therefore, please answer the following questions to the best of your ability.

All information related to this study will be stored confidentially, accessible only to the lead researcher. The results of this research will form part of a final PhD research thesis and may, at a future date, be published in an academic journal. If you require further advice, or have any questions then please contact the lead researcher, Kimberley Humphrey ( khumphr1@stu.chi.ac.uk; 07732597667)

Once again thank you for taking the time to answer these questions.

#### Demographics

Gender \*

- Male  
 Female  
 Prefer not to say Other (please specify)

Approximately, how many years of experience do you have working as a Healthcare Practitioner? \*

- 0-5  
 6-10  
 11-15  
 16-20  
 21+

Approximately, how many years have you been treating individuals who have sustained an athletic injury? \*

- 0-5
- 6-10
- 11-15
- 16-20
- 21+

Approximately, how many athletes who have sustained an injury do you see each month? \*An athlete is defined as any individual who trains and/or competes in sporting events, as a professional or just for fun.

- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- 40+

### Previous CPD Experience

Have you engaged with any CPD activities that promoted your understanding of the psychology of sport injury? \*

- yes
- no

What types of CPD have you previously engaged with to promote your understanding of the psychology of sport injury? \*(Select all relevant options)

- Reading (books/journals/expert statements)
- Conference and exhibitions
- Workshops
- Webinars
- Seminars & symposiums
- Online learning/courses
- Courses
- Working groups



- Societal forums
- Work shadowing
- Mentoring or teaching
- Reflective practice
- Peer review
- Conducting research
- Performative pieces (e.g. ethnographic-dramas)
- Clinical audits
- Online videos (e.g. YouTube)
- Athlete autobiographies
- Newspaper articles
- Websites
- Other (please specify)

What types of CPD have you found particularly useful, and why was this? \*

What types of CPD activities did you not find useful, and why was this? \*

### CPD Preferences

The following questions will focus on trying to understand your preferences for a CPD activity, that focuses on the psychology of sport injury.

Are there any particular topics you would like to see covered in a sport psychology CPD resource? \*

When thinking about the content of a professional training activity focusing on the psychology of sport injury, how useful would you find each of the following items if they were to be included? \*

(Please indicate how useful you this content would be on a scale of 1-5 [1 =

not useful, 3 = neutral and 5 = very useful]

	1	2	3	4	5
Signposting to sport psychology aspects of sport injury	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personal stories taken from athletes to show their experiences of injury	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Signposting to further research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Worksheets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Examples of what conversations with an injured athlete may look like	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Potential challenges athletes may face when navigating the injury process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instructions for psychological skills that may be applied during practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Action planning steps (instructions designed to help put you learning into action)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Statements to show what competencies and standards you have met	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reflective questions that ask you about your experiences as a practitioner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information on how athletic culture impact the injured athlete	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Considering the method of delivery, what formats of would you find useful when learning about the psychology of sport injury? \* (Select all relevant options)

- Online course
- Webinar
- Workshop
- Mentoring scheme
- Workbook
- App
- Dedicated website DVD/video content

Thank you for your participation in this survey. The next phase of this research will look to collect practitioner opinions on the usefulness of the developed resource. If you would like to be included in the next stage then please include your email address below.

## Application for Ethical Approval

### Section A: Basic information

<b>A1: Title of study:</b>	An exploration of Injury Professionals' Experiences and Perceptions of Continuing Professional Development		
<b>A2: Name of Applicant:</b> (in collaborative projects, just name the lead applicant)	Kimberley Humphrey		
<b>A3: Position of Applicant</b> (e.g. UG/Masters/PGR student, academic)	PGR student		
<b>A4: Programme of study:</b> (for UG or taught Masters students only)			
<b>A5: Department of Applicant:</b>	Sports and Exercise Sciences		
<b>A6: Checklist to ensure application is complete.</b> Have you prepared the following documents to accompany your application for ethical approval, please tick the appropriate column for each of the following:			
<b>Document</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
Confirmation of Ethical Approval of any other organisation (e.g. NHS, MoD, National Offender Management Service)			X
Recruitment information / advertisement (e.g. draft text for email/ poster/social media/letter)			X
Information sheet for participants	X		
Information sheet for carers/guardians			X
Information sheet/letter for gatekeepers e.g. Head teacher, teacher, coach			X
Consent form for participants	X		
Assent form for younger children			X
Documentation relating to the permission of third parties other than the participant, guardian, carer or gatekeeper (e.g. external body whose permission is required)			X
Medical questionnaire / Health screening questionnaire			X
Secondary information sheet for projects involving intentional deceit/withholding information			X
Secondary consent form for projects involving intentional deceit/withholding information			X
Debrief sheet to give to participants after they have participated			X
<b>Statements about completeness of the application</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
For research involving under 18s or vulnerable groups, where necessary, a statement has been included on all information sheets that the investigators have passed appropriate <b>Disclosure and Barring Service</b> <sup>1</sup> checks			X
I can confirm that the relevant documents listed above make use of document references including date and version number	X		
I can confirm that I have proof read my application for ethical approval and associated documents to minimise typographical and grammatical errors	X		

<sup>1</sup> Working with under 18's or other vulnerable groups may require a Disclosure and Barring Service Check. Contact HR@chi.ac.uk if you are not sure whether you have an up to date and relevant DBS check or if you require more information. Do note that a DBS check may take several weeks to obtain.

**Declaration of the applicant:**

I confirm my responsibility to deliver the research project in accordance with the University of Chichester's policies and procedures, which include the University's 'Financial Regulations', 'Research Ethics Policy', 'Data Systems and Security Policy' and 'Data Protection Policy' and, where externally funded, with the terms and conditions of the research funder.

**In signing this research ethics application form I am also confirming that:**

- The research study must not begin until ethical approval has been granted.
- The form is accurate to the best of my knowledge and belief.
- There is no potential material interest that may, or may appear to, impair the independence and objectivity of researchers conducting this project.
- Subject to the research being approved, I undertake to adhere to the project protocol without deviation (unless by specific and prior agreement) and to comply with any conditions set out in the letter from the University ethics reviewers notifying me of this.
- I undertake to inform the ethics reviewers of significant changes to the protocol (by contacting the clerk to the Research Ethics Committee (research@chi.ac.uk) in the first instance).
- I understand that the project, including research records and data, may be subject to inspection for audit purposes, if required in future, in keeping with the University's Data Protection Policy.
- I understand that personal data about me as a researcher in this form will be held by those involved in the ethics review procedure (e.g. the Research Ethics Committee and its officers and/or ethics reviewers) for five years after approval and that this will be managed according to Data Protection Act principles.
- I understand that all conditions apply to any co-applicants and researchers involved in the study, and that it is my responsibility to ensure that they abide by them.
- For the Student Investigator: I understand my responsibilities to work within a set of safety, ethical and other guidelines as agreed in advance with my supervisor and understand that I must comply with the University's regulations and any other applicable code of ethics at all times.

Signature of Applicant 

Date: 17/09/2018

*(if you haven't typed in your name and title of study in the Header of the document then please write your name and title below to ensure that this page links to the rest of the document, otherwise leave this blank)*

Name of applicant: Kimberley Humphrey

Title of study: An exploration of Injury Professionals' Experiences and Perceptions of Continuing Professional Development

## Section B: Authoriser assessment and approval


Where Applicants are students (undergraduate or postgraduate) supervisors should authorise this form; where applicants are staff members their line manager (or nominated signatory) should authorise this form.

<b>B1: Name of Authoriser:</b>	Dr Melissa Day	
<b>B2: Position of Authoriser:</b> (e.g. supervisor, line manager)	Supervisor	
<b>AUTHORISER:</b> Please categorise the application (A, A+ or B) ensure that the application form and all of the required documentation are complete before signing this application. <b>Authoriser assessment: (tick as appropriate – see Section 10 of the Research Ethics Policy)</b>		
<p style="text-align: right;"><b>Category A:</b> Proceed with the research project.</p> <p><i>Undergraduate applications:</i> Form and documentation retained at Department level. <i>Masters, PhD and staff applications:</i> Form and documentation forwarded to the Research Office <a href="mailto:research@chi.ac.uk">research@chi.ac.uk</a></p>		X
<p style="text-align: right;"><b>Category A+:</b> (for placebo controlled studies or similar see Appendix 12) Proceed with the research project.</p> <p><i>Undergraduate applications:</i> Form and documentation retained at Department level. <i>Masters, PhD and staff applications:</i> Form and documentation forwarded to the Research Office <a href="mailto:research@chi.ac.uk">research@chi.ac.uk</a></p>		
<p style="text-align: right;"><b>Category B:</b> Submit to the Ethical Approval Sub-group for consideration. <a href="mailto:research@chi.ac.uk">research@chi.ac.uk</a></p> <p>Proceed only when approval granted by the Chair of the Research Ethics Committee</p>		
<p><b>Authoriser, please provide a comment on your assessment of the research project and for those projects involving vulnerable groups that you are authorising as Category A please justify this classification in the box below. As a further point, do make appropriate reference to any other codes of practice in your discipline particularly if you think that the proposed research may be in tension with those codes.</b></p>		
<p><i>Comment:</i></p>		

### Authoriser's declaration:

- I have read the Research Ethics Policy and this has informed my judgement as to the category of assessment of this application.
- I understand that the applicant has taken account of the Research Ethics Policy and other relevant University policies in preparing this application.
- For Supervisors: I understand my responsibilities as supervisor, and will ensure, to the best of my abilities, that the student investigator abides by the University's Research Ethics Policy at all times.

**Authoriser, please complete this table making it clear which version of the application form you are approving:**

Version of the form (e.g. original version/ amended version following REC sub-group comments)	Signature of authoriser	Date
Version 2		17/09/2018

**For RO use: IF CATEGORY B:** Signature of the Chair of the Research Ethics Committee.

Signature: ..... Date: .....

*Please note that the Research Office will retain all applications for ethical approval for 5 years after the research project has ended as stated in the University's Data Protection Policy.*

**Section C: Ethical Review Questions begin:**

<p><b>C1. Does the study involve human participants?</b></p> <p>Participants in research are taken to include all those involved in the research activity either directly or indirectly and either passively, such as when being observed part of an educational context, or actively, such as when taking part in an interview procedure.</p> <p>NB: the University does not conduct research on animals. If your proposed project involves animals in any way please seek advice from the Research Office before proceeding.</p>	Yes
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**If answer to C1 is 'No' then you do not need to complete this form and you do not need to seek formal ethical approval. Nevertheless, you are required to conduct your research in accordance with the Research Ethics Policy (REP) and Researcher Code of Conduct.**

## C2. Why should this research study be undertaken?

Brief description of purpose of study/rationale

Following a meta-synthesis of the psychosocial sports injury literature (PhD study one) a number of key themes were developed which represent current knowledge and understanding in this research area. Yet despite the wealth of existing literature on the psychosocial responses to injury, the meta-study also illuminated some of the barriers that sports injury practitioners may face in accessing this information. First, research in sports related injury is predominately published in sport and exercise psychology journals. While such publication paths may be intuitively understandable, this publication strategy may restrict access for practitioners who are working with athlete populations but who sit outside of the sport and exercise science research community (e.g. physiotherapists, occupational therapists, policy makers). Second, the meta-study also revealed a dominance of research focusing on knowledge creation, while few articles encouraged knowledge application. This approach may act as a barrier for practitioners who require knowledge that can be applied in their daily work with injured athletes. Finally, while there is a wealth of research on athletic injury there is also a reliance on traditional methods of dissemination that present a realist tale. Authors such as Sparkes (2002) have suggested that researchers should seek alternative methods of dissemination that will reach a range of audiences, not just our academic peers.

In order to overcome these barriers what is needed are further insights into effective methods of translating existing knowledge to practitioners working with injured athletes. These barriers coupled with the 9.3 years estimated for clinical research evidence to be transferred down and implemented (Balas & Boren, 2000) and the time to read and appraise the literature (Straus, Tetroe & Graham, 2009), encourages the need for researchers to explore ways of bridging the gap through knowledge translation (KT).

The aim of this study is to explore the gap between the creation of knowledge and how it is translated within the context of sport injury. The study aims to gather healthcare practitioners perspectives and previous experiences of continuing professional development. In particular, the study aims to understand the needs of these professionals – how should knowledge be translated? Through what form?

## C3a. What are you planning to do?

Provide a description of the methodology for the proposed research, including proposed method and duration of data collection, tasks assigned to participants of the research and the proposed method and duration of data analysis. If the proposed research makes use of pre-established and generally accepted techniques, e.g. established laboratory protocols, validated questionnaires, please refer to this in your answer to this question. (Do not exceed 500 words). If it is helpful for the panel to receive further documentation describing the methodology then please append this to your application and make specific reference to it in box 3a below.



**Participants**

Approximately 50 participants will be recruited to the study through a snowballing technique, word of mouth, and the use of social media to advertise the study (Twitter). To participate in the study, participants should be:

- 1.) Currently practicing or training to be a healthcare practitioner
- 2.) Over the age of 18 years

**Procedure**

This study will use two forms of data collection, both of which will explore participants' experiences and perceptions with continual professional development (CPD) resources. The two methods used will be an online survey and a semi-structured interview.

Both methods will follow a similar series of questions. First, demographic information (e.g., number of years as a practitioner, qualifications) will be gathered. Second, the interview and questionnaire will ask participants about their previous experiences of CPD (e.g., what previous types of CPD have you engaged in? How useful was this CPD?), Finally, participants will be asked about possible alternative ways of engaging with CPD (e.g., how useful would you find X? would you like to use reflection/test questions/athlete stories?)

**Analysis**

Content analysis will be used to analyse the data.

**C3b. When are you planning to do it?**

Please enter the anticipated start and end dates of your study (Consider at which point you will be involving human participants, this would typically be in the data collection/information gathering phase of the project but may be earlier):

19<sup>th</sup> September – 31<sup>st</sup> October 2018

**C4. Where will the research be undertaken?**

Briefly describe the location of the study, provide details of any special facilities to be used and any factors relating to the study site/location that might give rise to additional risk of harm or distress to participants or members of the research team together with measures taken to minimise and manage such risks:

The interviews will take place in an area that is convenient to the participant. This is likely to include public but quiet spaces such as a coffee shop, or an interview room at the University of Chichester. In some cases interviews may be carried out on skype. The survey will take place online and there will be no contact between researcher and participant.

### C5. Who are the participants?

Please indicate the number of participants in each of the groups in the table below. If the precise number of participants is not known then please make an estimate. Please enter '0' in the 'Numbers in study' column for those groups that are not included in your study. Please note that the examples provided of different sorts of vulnerability are not an exhaustive list.

Participant	Numbers in study
<p align="center"><b>Adults with no known<sup>2</sup> health or social problems i.e. not in a vulnerable group:</b></p>	50
<p><b>Children aged 16-17<sup>3</sup> with no known<sup>3</sup> health or social problems:</b></p>	
<p><b>Children under 16 years of age with no known<sup>3</sup> health or social problems:</b></p>	
<p><b>Adults who would be considered as vulnerable e.g. those in care, with learning difficulties, a disability, homeless, English as a second language, service users of mental health services, with reduced mental capacity<sup>4</sup></b></p> <p>Identify reason for being classed as vulnerable group and indicate 'numbers in study' in next column adjacent to each reason (expand the form as necessary):</p> <p align="center">.....</p> <p align="center">.....</p>	
<p><b>Children (aged &lt;18) who would be considered as particularly vulnerable e.g. those in care, with learning difficulties, disability, English as a second language</b></p> <p>Identify reason for being classed as vulnerable group and indicate 'numbers in study' in next column adjacent to each reason (expand the form as necessary):</p> <p align="center">.....</p> <p align="center">.....</p>	
<p><b>Other participants not covered by the categories listed above (please list):</b></p> <p><b>List other categories here:</b> .....</p>	

<sup>2</sup> Known to the researcher

<sup>3</sup> A summary of UK definition of 'Child' : [http://www.nspcc.org.uk/Inform/research/briefings/definition\\_of\\_a\\_child\\_wda59396.html](http://www.nspcc.org.uk/Inform/research/briefings/definition_of_a_child_wda59396.html)

<sup>4</sup>[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/224660/Mental\\_Capacity\\_Act\\_code\\_of\\_practice.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/224660/Mental_Capacity_Act_code_of_practice.pdf)

**C6a. Is there something about the context and/or setting which means that the potential risk of harm/distress to participants or research is lower than might be expected?**

**Answer: No**

*Consider if the study is part of routine activity which involves persons with whom you normally work in a typical work context e.g. Teachers working with children in a classroom setting, researchers in the performing arts working with performers, sports coaches working with athletes/players or research involving students in an academic setting.*

*Optional: Further information to justify answer to 6a*

It is unlikely that this topic will cause any anxiety or distress to participants

**C6b. Are there any conflicts of interests which need to be considered and addressed?**

*(For example, does the research involve students whom you teach, colleagues, fellow students, family members? Do any of the researchers or participants have any vested interest in achieving a particular outcome? See section 9 of the Research Ethics Policy (REP))*

**Answer: No**

If conflicts of interest are envisaged, indicate how they have been addressed:

**C7. How will potential participants in the study be identified, approached and recruited?**

Please include details of:

- Basis for selection of participants in the study: *e.g. participants must be clinically obese adults; participants must be social workers over the age of 50; participants must have achieved Grade 5 in an appropriate musical instrument*
- Any criteria for exclusions (*e.g. participants declaring a heart problem will be excluded*)
- How the selection criteria will be applied *e.g. Health questionnaire completed prior to joining the study*

The means by which the participants will be recruited (*e.g. through an advert, through a school, through a sports club*), please be specific about the medium of the advertisement/recruitment information (*e.g. poster, email, website, social media, word of mouth*) and mention any third parties who may be involved in supporting the recruitment.

Through word of mouth, participants will be identified using the inclusion criteria outlined above. Snowball sampling will also be used whereby once recruited, participants will be asked if they know of any other health care practitioners who would like information on the study.

To recruit participants to the survey, social media will be used. This will include the use of Twitter, Facebook and specific forums relevant to healthcare practitioners.

**C8. Will any payment, gifts, rewards or inducements be offered to participants to take part in the study? See section 11 of the REP.**

**Answer: No**

Please provide brief details and a justification:

**C9a. Is the process of the study and/or its results likely to produce distress, anxiety or harm in the participants even if this would be what they would normally experience in your work with them?**

*See section 5 of the REP.*

**Answer: No**

If you answered Yes to 9a, please answer 9b below:

**C9b. Is the process of the study and/or its results likely to produce distress or anxiety in the participants *beyond* what they would normally experience in your work with them?**

**Answer: No**

If yes this Application must be categorised as 'B'

Please provide details:

**C9c. What steps will you take to deal with any distress or anxiety produced?**

E.g. have a relevant professional on-hand to support distressed/anxious participants. Careful signposting to counselling or other relevant professional services. Other follow-up support.

In the unlikely event that any distress occurs the following steps will be taken:  
a.) On the participants request the interview may be stopped (interview only)  
b.) The researcher will provide contact details of local support services that may provide assistance (interview and survey).

**C9d. What is the potential for benefit to research participants, if any?**

E.g. Participants may gain an increased awareness of some issue or some aspect of themselves.

The participants may benefit from reflecting on their own experiences of CPD.

**C10a. Will the study involve withholding information or misleading participants as part of its methodology? (Please refer to sections 6.11 and 10 of the REP for further guidance)**

**Answer: No**

Please provide details if this has not already been explained in section 3a:

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C10b. Do you envisage that withholding information or misleading participants in this way will lead to any anxiety, distress or harm?

**Answer: No**

Please justify your answer to 10b.:

It is the University Research Ethics Policy that all projects with the exception of double blind placebo trials (or similar) will be categorise as Category B. Double blind placebo trails (or similar) may be categorised as Category A+.

**C11a. Does your proposal raise other ethical issues apart from the potential for distress, anxiety, or harm?**

**Answer: No**

**C11b. If your answer to C11a. was 'yes', please briefly describe those ethical issues and how you intend to mitigate them and/or manage them in the proposed study, otherwise jump to C11c.**

**C11c Does your proposed study give rise to any potential risk of harm or distress to yourself or other members of the research team? OR is there any risk that you could find yourself in a vulnerable position as you carry out your study.**

**Answer: No**

If you answer 'yes' to either of these points please explain briefly what the risks are and what steps you are taking in order to minimise and manage those risks.

For example does your study involve you in 1-1 interviews in a private setting that might suggest precautions need to be taken relating to lone-working (See section 9 of the REP), Have you considered the likelihood of a participant(s) disclosing sensitive information to you about illegal or harmful behaviour and what actions you would take in such circumstances?

**C12. Will informed consent of the participants be obtained and if so, how?**

**Answer: Yes**

*See section 6 of the REP to help you answer this question. Section 6.2 covers research that involves observing behaviour in a public place where gaining informed consent may not be practical or feasible.*

*When and how will informed consent be obtained? Will it be written or oral consent bearing mind that oral consent will not be considered adequate other than in exceptional circumstances and must be appropriately justified in your application?*

*NB: Ethical approval should, as a principle, be sought before research participants are approached.*

Before the partaking in the interview written consent forms must be signed by participants.  
They first page of the survey will outline the aims of the study and requirements of participation. Participants will consent by clicking on to continue the survey.

**C13. Is there anyone whose permission should be sought in order to conduct your study? E.g. Headteacher of a school, parents/guardians of child participants.**

**Answer: No**

*When and how will informed consent be obtained and from whom? Will it be written or oral consent bearing mind that oral consent will not be considered adequate other than in exceptional circumstances and must be appropriately justified in your application? If you are seeking to gain 'loco parentis' consent from a school rather than seeking individual parental consent please describe your reasoning.*

**C14. Do you need to seek the permission of any other organisations, individuals or groups other than outlined in section 13? E.g. the Research Ethics Committee of partner or participating organisations. Organisations like the NHS and the Prison Service have specific systems for granting ethical approval for research.**

**Answer: No**

*Please note that all applications must go through the University of Chichester Application for Ethical Approval process and that they must meet the Research Ethics Policy (REP) requirements. Other prior approval will be taken into account but will not in itself be sufficient to gain University Research Ethics Approval. Each application must normally be accompanied by evidence (e.g. formal statement from the appropriate Ethics Committee) confirming approval by the external body (and any concerns/issues identified). In cases where an external body requires prior approval from the University Research Ethics Policy (such as some NHS work) the Research Ethics Committee (REC) may grant in principle approval pending written confirmation of ethical approval by the external body.*

Please describe the permission that is required and how you will be seeking that permission: Please attach any relevant documentation e.g. letter, that relates to the seeking of the relevant permissions.

**C15. It is normally required that a participant's data is treated confidentiality at the outset of, during and after the research study. Will this be the case?**

**Answer: Yes**

If the answer is 'yes' please describe how you will be maintaining the confidentiality of participants' data. If the answer is 'no' please justify the exceptional circumstances that mean that confidentiality will not be guaranteed. *See section 7 of the REP.*

*Please make reference to measures you are taking to ensure security of data from the point of data collection, transfer from notebooks/voice recorders etc., onto secure devices, to the point of analysis, sharing and final storage. Actions should be in accordance with the University's Data Systems and Security Policy and Data Protection Policy (in particular see Appendix 4 of the Data Protection Policy for guidance for University staff).*

Please provide details:

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Audio recordings from interviews will be transferred to a computer immediately after the interview and the version on the audio recorder will be deleted.  
All audio files, transcribed interviews, and survey responses will be stored on a password protected computer which can only be accessed by the researcher.

**C16. It is normally required that the anonymity of participants is maintained and/or that an individual's responses are not linked with their identity. Will this be the case?**

**Answer: Yes**

If the answer is 'yes' please describe how you will be maintaining the anonymity of participants. If the answer is 'no' please justify the circumstances that mean that anonymity will not be guaranteed. *See section 7 of the REP. NB: in group studies it is likely that each individual in the group will be aware that others in the group are participating in the study – they are therefore not anonymous to each other. However, their identity should not normally be associated with their individual responses. In some studies individual participants may not want their identity known to other participants and the study must be designed and undertaken accordingly.*

Please provide details:

The participants will be given a pseudonym at the time of transcription of the interviews. No identifiable details will be included in the transcript and details such as places and names will be changed.  
No identifiable details will be included in the survey, participants will remain anonymous throughout.

**C17. Will participants have a right to comment or veto material you produce about them?**

**Answer: Yes**

Please give details and if your answer is 'no' then please provide a justification.

Participants will be invited to provide comments on the final interview analysis for this study. Their comments may be used to edit and refine the results.

**C18. Does the project involve the use of or generation/creation of audio, audio visual or electronic material (e.g. Dictaphone recording, video recording) directly relating to the participants?**

**Answer: Yes**

If yes, please describe how the collection and storage of this will be managed bearing in mind data protection and anonymity issues (*see section 7 of the REP*).

Audio recordings will be transferred to a computer immediately after the interview and the version on the audio recorder will be deleted.

**C19. How will the participants be debriefed?**

It is expected that wherever possible all participants will receive some form of debriefing. This might be a verbal debriefing or a written debriefing depending on the context of the study. Debriefing provides an opportunity to remind participants of the procedures and outcomes of the research, and to provide further assurances on areas such as confidentiality, anonymity, and retention of data. Projects that intentionally withhold information or deceive as part of their methodology must include a written debrief sheet. (*Please refer to sections 6.1 and 6.2 of the REP for further guidance*)

Participant will be verbally debriefed at the end of the interview. In doing this the researcher will check on their experience of the interview and their well being at the close of the interview.

At the close of the survey participants will be thanked for their time and the contact details of the researcher will be included.

**C20a. Might the research entail a higher than normal risk of damage to the reputation of the University, since it will be undertaken under its auspices? (e.g. research with a country with questionable human rights, research with a tobacco company. See section 9.3 of the REP).**

**Answer: No**

**C20b. If your answer to 20a was yes, please describe the potential risk to the University's reputation and how this risk will be mitigated. If no, please jump to C20c.**

**C20c. Does the research concern groups or materials that might be construed as extremist, security sensitive or terrorist?**

If so please describe how you will manage the research so that it is not in breach of the Terrorism Act (2006) which outlaws the dissemination of records, statements and other documents that can be interpreted as promoting or endorsing terrorist acts. For example, relevant documents, records, information and data pertaining to the research can be stored on a secure University server. Contact the Director of Research in the first instance if you are unsure as to how to proceed.

No.

**C21a. Will your results be available in the public arena?** (e.g. publication in journals, books, shown or performed in a public space, presented at a conference, internet publication and placing a dissertation in the library) *see section 8 of the REP.*

**Answer: Yes**

If yes, please provide brief details:

*NB: Have you considered the date by which it would be impractical for participants to withdraw their data from your study? Once you have begun to analyse the data or prepare it for publication it is reasonable for you to state that it will not be possible for a participant to request that their data is removed from the study. You need to make this clear on the information sheet.*

The study will form part of the PhD thesis which will be available publically. Further, results may also be published in an academic journal.

---

**C21b. Will your research data be made available in the public arena?**

Certain research funding bodies require that research data is made Open Access i.e. freely available to the public. The University has a Research Data Policy that outlines the expectations and requirements for researchers at the University. Contact the Director of Research in the first instance if you are unsure as to how to proceed.

**Answer: No**

If yes, please provide brief details as to how the data will be prepared for public access including an overview of the meta-data that will accompany published data sets. Please also confirm that your intentions with respect to making data open access are clearly communicated to participants so that they can provide informed consent:

**C22. Are there any additional comments or information you consider relevant, or any additional information that you require from the Committee?**

*[end of form]*

## **Information Sheet**

### ***Department of Sport and Exercise Sciences***

PLEASE READ THE FOLLOWING CAREFULLY

**Study title:** An Exploration of Injury Professionals' Experiences and Perceptions of Continuing Professional Development

*We would like to invite you to take part in a research study. Before you decide you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully.*

#### **What is the purpose of the research and how will the research be carried out?**

This study is interested in your experiences and ideas surrounding continual professional development (CPD). To understand these experiences the study aims to: A) explore your previous experiences with CPD and B) to explore how new resources could be tailored to better support practitioner development. In particular, this research will focus on how CPD in the psychology of injury could be improved.

#### **What will you be asked to do?**

You will be asked to meet with the researcher once and take part in an interview that will last for approximately one hour. During this interview the researcher will ask you questions regarding your personal experiences of and opinions about CPD. With your permission, the interview will be recorded using an audio recorder and will then be transcribed by the researcher.

#### **What are the anticipated benefits of participating in the research?**

You may find it beneficial to discuss your own experiences of CPD and to reflect on these.

#### **Are there any risks associated with participating in the research?**

There are no risks associated with this research. In the unlikely event that any question

does causes you distress then you may refrain from answering this or stop the interview at any time.

**Do you have to take part?**

No, you do not have to take part in this study. You may stop the interview at any time and may ask that your interview is discounted from the analysis up to a week after the interview.

**Who can you contact if you have any questions about the project?**

If you have any queries or wanted to find out more information about what the research is investigating feel free to contact the researcher Kim Humphrey (Email: khumphr1@stu.chi.ac.uk).

**What happens if you change your mind and want to withdraw?**

As mentioned earlier if you want to withdraw your data, contact the researcher (email address included above) and the data will be permanently deleted.

**What will happen to the information collected as part of the study?**

The recordings will be stored on a password protected computer, to ensure no one other than the researcher can access the data. Recordings will be stored until the final report is produced. In the report, you will be anonymised through the use of a pseudonym (fake name). Any details that would identify you (e.g., places) will be removed from your interview transcript.

**Who can you contact if you have a complaint about the project?**

If there are any queries or complaints you can contact the researcher, Kim Humphrey or Melisa Day, the researcher's supervisor (Email: M.Day@chi.ac.uk).

**This project has been approved in accordance with the University of Chichester Research Ethics Policy**

**Thank you for your time**

**Consent Form**

***Department of Sport and Exercise Sciences***

PLEASE READ THE FOLLOWING CAREFULLY AND ANSWER ALL STATEMENTS

**Study title:** An exploration of Injury Professionals’ Experiences and Perceptions of Continuing Professional Development

- |  |          |
|--|----------|
| 1) I have read and understand the information sheet (Version 2: 19/09/2018) for this research project. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. | Yes   No |
| 2) I understand that my participation in the activity (recorded interview) is voluntary and that I am therefore free to withdraw my involvement at any stage, without giving a reason.                                   | Yes   No |
| 3) I am aware of the timescales in which I can withdraw my data (as indicated on the Information Sheet)  | Yes   No |
| 4) I understand that all information will be anonymised and that my personal information will not be released to any third parties.  | Yes   No |
| 5) I agree to participate in this research.  | Yes   No |

Your name (print).....	Researcher’s name (print).....
Your signature.....	Researcher’s signature.....
Date.....	Date.....

## Appendix F



# Application for Ethical Approval

## Form E1

### For all staff and postgraduate students

This form should be used by ALL research students, taught postgraduate students and staff who wish to undertake research under the name of the University of Chichester.

**THIS FORM MUST BE COMPLETED AND APPROVED** by the relevant persons and approved by the relevant Committees prior to commencement of research. Full guidance on the Application process can be found at Appendix 2 and 5 in the Ethical Policy Framework.

**APPLICANTS** – if the study involves participants each Application must be submitted alongside relevant consent forms, information letters/sheets, and debriefing sheets where appropriate.  
This documentation should be version numbered and dated.

#### **AUTHORISER:**

Please categorise the application (A or B). For category A & B applications please ensure that the signed form and all relevant documentation is submitted to the Ethical Approval Sub-group (research@chi.ac.uk).

*Where Applicants are postgraduate research students, supervisors should authorise this form; where applicants are staff members, their Head of Academic Department (or nominated signatory) should authorise this form; where applicants are Heads of Academic Departments, the relevant Deputy Dean (or nominated signatory) should authorise this form.*

#### **BOX 1: Basic information**

<b>Title of study:</b>	
An examination into the stressors experienced in the onset phase of injury, the barriers to support provision, and the promotion of adaptive coping	
<b>Name of Applicant:</b>	Kimberley Humphrey
<b>Position of Applicant:</b>	PhD Student
<b>Name of Authoriser:</b>	
Dr Melissa Day	
<b>Position of Authoriser:</b>	Senior Lecturer in Sport and Exercise Psychology



**BOX 2: Authoriser assessment**

<b>Authoriser assessment:</b> <i>(please delete as appropriate)</i>	<b>Category B: Submit to the Ethical Approval Sub-group for Approval</b>
--	--

<b>1. Brief description of purpose of study/rationale</b>
<p>Over recent years, research has demonstrated that injury is often a stressful and challenging experience for athletes (Evans, Wadey, Hanton, &amp; Mitchell, 2012). In particular, it has been suggested that the degree of stress experienced may be dependent on the specific phase of the injury process that the athlete is currently experiencing (Evans et al, 2012; Wadey, Evans, Hanton &amp; Neil, 2012). Three phases have been proposed to characterise the injury process - onset, rehabilitation and return to sport phase. Each phase brings with it specific injury-related stressors, for example incapacitation and an inability to work are stressors common to the onset phase while a lack of rehabilitation progress and a risk of re-injury are common stressors for the rehabilitation and return to sport phases (Evans et al., 2012). Considering the range of difficulties athletes could experience during each phase it is not surprising that Mosewich, Crocket and Kowalski (2013) proposed that research should focus on understanding these difficulties during each specific phase of the injury process.</p> <p>Of the three phases the onset phase has been reported to be the point of greatest emotionality for an athlete (Heil, 1993). This phase has been commonly defined as the period between injury occurrence and the first physiotherapy appointment (Evans et al, 2012). During this phase an athlete could potentially experience a variety of injury-related stressors. Examples from previous research have included, a loss of independence, injury diagnosis, a delay in treatment, loss of routine, boredom and isolation (Evans et al., 2012). Although Evans et al (2012) reported the greatest number of categorised stressors during the onset phase, Ardern Taylor, Feller, Whitehead and Webster (2013) suggested that it is not these factors per se that predicts the level of success when returning to the pre-injury level of sport, instead it is the athlete's appraisal of these factors. Ardern et al (2013) further reported that athletes who made a positive appraisal of their ability to return to sport during the onset period demonstrated a higher success rate of returning to a pre-injury level of sport.</p> <p>Although previous research has provided some understanding of the onset phase, this phase is often explored in less depth as part of the overall injury experience. The purpose of this study will be to explore the lived experiences of injured athletes during the onset phase of injury.</p>

<b>Research questions</b>	
1) What are the lived experiences of an athlete in the onset phase? 2) How do the experiences during this phase shape an athlete’s overall injury experience? 3) What type of social support is received during this phase?	
1. Does the study involve human participants? <i>NB: the University does not conduct research on animals. If your project involves animals in anyway please seek advice from the Ethical Approval Sub-Group before proceeding.</i>	Yes

**If answer to Q2 is ‘No’ then proceed to Question 20a.**

<b><i>Start of section dedicated to studies involving human participants</i></b>	
3. Brief description of methods: (include a justification for using the particular participant group)	
<p><b>Participants:</b> A small sample of approximately six injured athletes will be recruited from an adult population (minimum age of 18 years old). Participants will be currently competing at either County level or above in any sport.</p> <p>In order to assist with participant recruitment, gatekeepers from within existing sport networks will be asked to pass on information to injured athletes (Wright, Darko, Standen &amp; Patel, 2010). These gatekeepers will be coaches, performance directors, county/regional development officers and national governing body development managers. To do this the researcher will approach existing professional contacts (from the applicant’s current sport development position) from a range of sports. No data will be collected from gatekeepers but they will be asked to forward information to injured athletes within their sports network.</p> <p><u>Phase 1: Preparation Phase</u>        Gatekeepers will be briefed on the study and provided with a number of participant information sheets (supporting document 1).</p> <p><u>Phase 2: Participant Recruitment</u>        Following the occurrence of an injury the gatekeeper will be asked to provide the athlete with a participant information sheet (supporting document 1) informing them of the research and inviting them to be involved in the study.</p> <p>The onus will be placed on the athlete to contact the researcher if they wish to be involved in the study. Athletes who contact the researcher will be asked to complete the participant consent form (supporting document 2) and a suitable</p>	

first interview date and location will be scheduled within one week of the athlete making contact with the researcher.

### Phase 3: Data Collection

All participants will be invited to take part in a minimum of two unstructured interviews which will last approximately 90 minutes. Interviews will be staggered across the onset phase at two week intervals. These interviews will continue until the time that the participant attends their first physiotherapy appointment. The initial interview will be scheduled within seven days of the athlete sustaining the injury.

The use of multiple interviews is an essential part of narrative research as it encourages a person to tell their story (Smith, 2010). While each interview will be unstructured, focusing on the participant experience of injury, the opening question for each interview will ask participants to describe their injury experience over the past 2 weeks. Likely themes that may be discussed include stressors during the injury process, coping strategies, emotional responses to injury, and social support structures.

Alongside the interviews, participants will also be asked to complete an unstructured diary (supporting document 3) in the time between their interviews. This will focus on the stressors experienced and the coping strategies used during the onset phase. The diary will act as a form of data collection as well as being used to prompt questions during interviews. Diaries will be sent to the researcher prior to each interview. The research will read the diary entries and make notes on themes and possible questions for the interview.

### Phase 4: Analysis

Following the completion of data collection and transcription a thematic narrative analysis will be completed (Sparkes & Smith, 2014). The aim of this type of analysis will be to examine the psychological themes that emerge as a result of each athlete's injury.

#### 4. Location of the study and details of any special facilities to be used:

Primarily, interviews will be conducted either at the University of Chichester or at a convenient location for the participant/researcher e.g. training sites, sports centres, participants' homes or national training centres. The choice of each location will be dependent on the following factors:

- 1) Does it provide a confidential environment for the athlete?
- 2) Is it suitable in terms of noise levels?
- 3) Is the athlete able to access the location with their injury?

Considering that the interview location may vary the following procedures will be put in place to ensure researcher and participant safety:

<ul style="list-style-type: none"> <li>• Adherence to the lone researcher safety protocol – this protocol has been developed in accordance with the Social Research Associations (SRA) Staying Safe Code of Practice (SRA, 2014) and follows a step by step procedure for reporting and tracking the location of the researcher.</li> <li>• Prior to each interview the researcher will inform the research supervisor of the address and expected finish time of the interview. She will always carry a mobile telephone and will inform the supervisor when the interview has ended.</li> <li>• Formulation and agreement of de-escalation and disengagement procedures with supervisor – these procedures are a series of guidelines or excuses that the research can utilise if they feel unsafe within the environment.</li> <li>• Prior consultation and mutual agreement with the participant regarding the interview location</li> </ul>	
5. Are there any conflicts of interests which need to be considered and addressed? <i>(For example, does the research involve students whom you teach, colleagues, family members? Do any of the researchers or participants have any vested interest in achieving a particular outcome?)</i>	No
<i>If conflicts of interest have arisen, indicate how they have been addressed:</i>	
6a. Is the study part of routine activity which involves persons with whom you normally work in a typical work context e.g. Teachers working with children in a classroom setting, researchers in the performing arts working with actors in a studio, or research involving students in an academic setting.	No
<i>Optional: Further information to justify answer to 6a</i>	
6b. Are the participants children or members of other vulnerable groups (e.g. elderly, those suffering from mental illness, those whose first language is not English)	No
.	
<p><b><i>If the answer to 6a is ‘No’ and the answer to 6b ‘Yes’, this Application must be categorised as ‘B’.</i></b></p> <p><b><i>If the answer to 6a is ‘Yes’ and the answer to 6b ‘Yes’, this Application could be categorised as ‘A’ or ‘B’; the Authoriser would make a judgement depending on the activities and the context of the work. If the answer to 6a is ‘Yes’ and the answer to 6b ‘No’, this Application may be categorised as Category A.</i></b></p>	
7. Basis for selection and rejection of participants in the study: <i>e.g. participants must be</i>	

<i>clinically obese adults; participants must be social workers over the age of 50; participants must have achieved Grade 5 in an appropriate musical instrument</i>	
<p>This study will be recruiting a minimum of six athletes who have sustained an injury and who are currently in the onset phase of injury. Participants will be recruited using the following criteria:</p> <ul style="list-style-type: none"> <li>a) The athlete is participating at County level or above</li> <li>b) Aged over 18 years</li> <li>c) Has sustained an injury while playing sport</li> </ul>	
8. Will any payment, gifts, rewards or inducements be offered to participants to take part in the study?	No
<i>Please provide brief details and a justification:</i>	
9a. Is the process of the study and/or its results likely to produce distress, anxiety or harm in the participants even if this would be what they would normally experience in your work with them?	Yes
<p><b>If you answered Yes to 9a, please answer 9b below:</b></p> <p>9b. Is the process of the study and/or its results likely to produce distress or anxiety in the</p> <p style="padding-left: 40px;">participants <i>beyond</i> what they would normally experience in your work with them?</p> <p><i>If yes this Application must be categorised as 'B'</i></p>	No
<p>This study may have the potential to produce distress or anxiety in participants given that participants will be asked to discuss or write about events that may be stressful or emotional for them. Previous research has suggested that emotional distress experienced in this type of study can occur from openly discussing or reliving the injury experience. However, it has also been highlighted (Smith &amp; Sparkes, 2009a, 2009b) that this is not an uncommon research approach to understand the injury process and that athletes have reported the interview and diary writing experience to be complimentary to their rehabilitation.</p>	
9c. What steps will you take to deal with any distress or anxiety produced? <i>E.g. have a relevant professional on-hand to support distressed/anxious participants. Careful signposting to counselling or other relevant professional services. Other follow-up support.</i>	
<p>Throughout this study the following steps will be taken to deal with any emotional distress experienced:</p> <p>Offer participants the opportunity to withdraw from the study at any point</p>	

<p>Offer participants the chance to request a break at any point during the study/interview</p> <p>Ensure participants are provided with the contact information of the research supervisor prior to data collection to ask any questions regarding the research</p> <p>Ensure that the researcher has the adequate levels of training and practice at interviewing. This will be enhanced through counselling CPD course and pilot interviews.</p> <p>In addition to these steps, the lead researcher (Kimberley Humphrey) will identify a local counselling service accessible to the athlete, in case a referral is needed. Prior to making any referral Kimberley will discuss this decision with her research supervisor (Dr Melissa Day)</p>		
<p>10. Will the study involve withholding information or misleading participants as part of its methodology? <i>(Please refer to Section 10 of the Ethical Policy Framework for further guidance)</i></p> <p><i>If 'yes' this Application must be categorised as 'B'</i></p> <p><i>Please provide details:</i></p>	<p>No</p>	
<p>11a. Does your proposal raise other ethical issues apart from the potential for distress, anxiety, or harm?</p>		<p>No</p>
<p>11b. If your answer to 11a. was 'yes', please briefly describe those ethical issues and how you intend to mitigate them and/or manage them in the proposed study.</p>		
<p>12. Will informed consent of the participants be obtained and if so, how?</p> <p><i>NB: Ethical approval should, in general, be sought before research participants are approached.</i></p>	<p>Yes</p>	
<p>Date consent obtained:</p> <p>Written or oral?</p> <p><i>(Please specify. Oral consent will not be considered adequate other than in exceptional circumstances and must be appropriately justified in your application - you may use Box 22 for this purpose)</i></p> <p>Copy of signed consent form attached?</p> <p>See supporting documents</p>	<p>Written</p>	
	<table border="1"> <tr> <td>Yes</td> <td>N/A</td> </tr> </table>	Yes
Yes	N/A	

13. In legal terms, is there anyone whose permission has to be sought in order to conduct your study? e.g. parents/guardians of child participants.	No	
<i>Please give details:</i>		
<p style="text-align: right;">Date consent obtained:</p> <p style="text-align: right;">Written or oral?</p> <p style="text-align: center;"><i>(Please specify. Oral consent will not be considered adequate other than in exceptional circumstances and must be appropriately justified in your application - you may use Box 22 for this purpose)</i></p> <p style="text-align: right;">Copy of signed consent form attached?</p>		
	Yes	N/A
14. Do you think you need to seek the permission of any other individuals or groups other than outlined in section 13? E.g. the Ethics Committee of partner or participating organisations.	No	
<i>Please give details:</i>		
<p style="text-align: right;">Date consent obtained:</p> <p style="text-align: right;">Written or oral?</p> <p style="text-align: center;"><i>(Please specify. Oral consent will not be considered adequate other than in exceptional circumstances and must be appropriately justified in your application - you may use Box 22 for this purpose)</i></p> <p style="text-align: right;">Copy of signed consent form attached?</p>		
	Yes	N/A
15. It is normally required that the confidentiality of participants is guaranteed at the outset of, during and after the research study. Will this be the case? If the answer is 'yes' please describe how you will be maintaining the confidentiality of participants. If the answer is 'no' please justify the exceptional circumstances that mean that confidentiality will not be guaranteed.	Yes	

*Please provide details:*

Throughout this study the confidentiality of participants will be maintained by ensuring the following steps are taken:

- Each participant will be assigned a unique code and a pseudonym so that they will not be identifiable on the audiofiles or written transcripts
- Information will be stored on a password secure computer accessible only to the lead researcher
- Participants will have the right to provide comment on interview transcripts and choose to withdraw or change the transcript as they deem necessary
- Where information of a particularly sensitive nature (e.g., injury caused by malpractice) is revealed then the researcher will seek guidance from their supervisor.

16. It is normally required that the anonymity of participants is maintained and/or that an individual's responses are not linked with their identity. Will this be the case? If the answer is 'yes' please describe how you will be maintaining the anonymity of participants. If the answer is 'no' please justify the circumstances that mean that anonymity will not be guaranteed.

*NB: in group studies it is likely that each individual in the group will be aware that others in the group are participating in the study – they are therefore not anonymous to each other. However, their identity should not normally be associated with their individual responses. In some studies individual participants may not want their identity known to other participants and the study must be designed and undertaken accordingly.*

Yes

Throughout this study the anonymity of participants will be maintained by ensuring the following steps are taken:

- Each participant will be assigned a unique code and a pseudonym so that they will not be identifiable on the audiofiles or written transcripts
- Pseudonyms will also be used where the participant refers to the naming of others (e.g., coaches, physiotherapists) and any identifiable details (e.g., location) will be removed.
- Any identifiable details (e.g., club name) will be removed.
- Information will be stored on a password secure computer accessible only to the lead researcher.
- Encryption will take place as soon as possible following the interview.
- Participants will have the right to provide comment on interview transcripts and choose to withdraw or change the transcript as they deem necessary

17. It is normally expected that participants will have a right to comment or veto material you produce about them. Will this be the case in your study, please give details and if your answer is 'no' then please provide a justification.

Yes



Each completed interview will be transcribed verbatim. Following this, participants will then be given the opportunity to review their written transcripts and then comment on the material that has been produced. Where participants request changes to their written interview transcripts these changes will be made.

Following the analysis of the interviews and diary entries participants will be invited to comment on the researcher's interpretations. These comments will be discussed by the research team and where participants disagree with the researcher's interpretations, the interview and diary transcripts will be revisited by the researchers to check for alternative explanations.

18. Does the project involve the use of or generation/creation of audio visual or electronic material directly relating to the participants?

Yes

*If yes, please describe how the collection and storage of this will be managed bearing in mind data protection and anonymity issues (see paragraphs 9.7 and 11.7 of the Ethical Policy Framework).*

All interviews will be transcribed verbatim. This data will be stored on a computer and kept by the lead investigator. These files will be stored on an external hard, desktop computer. All data will be kept within a password secured folder that would be kept on a password encrypted system, accessible only to the lead researcher. Furthermore all interview data will be coded with the participant's assigned code and free from identification by name or identifying details.

All written diary data will be stored in a locked filing cabinet.

Data will be held until the PhD of the lead researcher has been completed. Following this data will be shredded and disposed of in the University confidential waste.

19. Please outline how participants will be debriefed

*(Please refer to paragraph 10.2 of the Ethical Policy Framework for further guidance)*

At the end of each interview the researcher will ask questions to check on the well-being of participants. For example "how do you feel now that we've finished this interview?" "How did you find the overall interview experience?", "Is there anything additional that you would like to talk about or anything that you would like to bring up?"

At the end of the study participants will be thanked for their participation and informed that they will have the right to comment on interview transcripts and analysis. Following this they will also be reassured that all raw data will be stored confidentially on either a password-secure computer or in a locked filling cabinet, that the data maybe published in an academic journal at a later date and pseudonyms will be used to protect their identity.

Debrief questions will be used to check their well-being. For example "now that our interviews have come to an end how are you feeling about your injury/moving forward?"

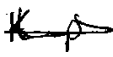
***End of section dedicated to studies involving human participants***

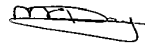
***All applicants to complete questions 20a to 25***

20a. Might the research entail a higher than normal risk of damage to the reputation of the University, since it will be undertaken under its auspices? (e.g. research with a country with questionable human rights, research with a tobacco company.).	No
20b. If yes, please describe the potential risk to the University's reputation and how this risk will be mitigated.	
21. Will your results be available in the public arena? (e.g. publication in journals, books, shown or performed in a public space, presented at a conference, internet publication and placing a dissertation in the library)	Yes
<p><i>If yes, please provide brief details:</i></p> <p>The findings of this study will potentially be published within peer-reviewed scientific journals (for example, Psychology of Sport and Exercise). Furthermore results will also be presented at national and international academic conferences relevant to the field.</p>	
22. Are there any additional comments or information you consider relevant, or any additional information that you require from the Committee?	
N/A	
<b><i>For Authorisers:</i></b>	
<b>23. Please provide a comment on your assessment of the research project, and where necessary indicate what further information is required.</b>	
24. In your view, does the proposed study potentially contravene any aspect of established codes of practice in your discipline?  (For instance, the codes of practice of the British Sociological Association, British Psychological Society, and British Education Research Association are available on the internet.)	No
<b>25. If yes, please give details and identify issues you wish the Ethics Committee to</b>	

<b>discuss/resolve:</b>

**Approval**

Signature of Applicant: ...  ..... Date: 29/07/14.....

Signature of Authoriser: ...  ..... Date: 29/07/14.....

I the Applicant  and I the Authoriser  have read the Ethical Policy Framework (*please tick*)

**IF CATEGORY B:** Signature of the Chair of the Ethics Committee (*or authorised signatory*)

Signature: ..... Date: .....

## Appendix G



### [Participant Information Sheet]

#### **An examination into the stressors experienced in the onset phase of injury, the barriers to support provision and the promotion of adaptive coping**

Dear [insert name]

I am sorry to hear of your recent injury, I hope you are feeling better and that your injury is not causing you too much discomfort. To briefly introduce myself, my name is Kimberley Humphrey and I am PhD student in the Department of Sport & Exercise Sciences at the University of Chichester. I am currently researching into the initial impact that injury has on athletes and the support they receive. The overall aim is to understand as much as possible about athletes' early injury experiences. This information will then be used to better understand how we can support athletes in the initial stages of injury. As an athlete myself, I know that sustaining an injury can be a difficult time for many people. I would like to invite you to be involved in this study and tell me your injury story to help me understand your experience of injury. Before you decide, I have outlined some details of the study that I hope will inform your decision. Please take the time to read the following information carefully.

#### **What is the purpose of the research and how will the research be carried out?**

This is the first study in a programme of research which will explore how an athlete responds and copes when they first sustain an injury. The research aims to understand the experiences of injured athletes as they happen, by using diaries and interviews to encourage the athlete to share their injury experience.

#### **What will you be asked to do?**

You will be asked to voluntarily complete a minimum of two interviews about your injury experience. These interviews will last approximately 90 minutes. As this study is looking to understand how your injury experiences might change, the interviews would be scheduled at two week intervals until the time that you attend your first physiotherapy appointment. You would also be asked to complete a written diary to record any experiences that you have in-between interviews. This written diary may last from four to six weeks and you would be asked to make entries daily where possible. For two weeks after the final interview you would be given the opportunity to withdraw your data from the study should you wish to do so, without having to provide a reason.

**What are the anticipated benefits of participating in the research?**

Many people have previously reported some therapeutic benefits from being involved in studies that have used interviews and/or diaries. For example, people have found that they have been able to make sense of events, vent emotions in a confidential setting and raise their self-awareness.

**Are there any risks associated with participating in the research?**

This study has the potential for participants to experience emotional distress as a result of openly discussing their injury experiences. For example, some people might find talking about their injury difficult, or may feel sadness when discussing that they are unable to compete. But if you wish to take part you would be able to choose not to answer any questions that you find difficult to answer and you would be able to stop the interview at any point or take a break.

**Do you have to take part?**

No, there is no requirement for you to take part; your involvement in the study is entirely voluntary. If you did choose to take part you would have the right to withdraw from the study at any point and you will have the opportunity to withdraw your data without reason up until 2 weeks after the final interview.

**What will happen to the information collected as part of the study?**

This study has been approved in accordance with the University of Chichester Ethical Policy Framework. All information related to this study will be stored confidentially using a password encrypted storage device accessible only to the lead researcher. Furthermore, each participant will be assigned a unique code and a pseudonym, which will only be identifiable to lead researcher. The results of this research will form part of a final PhD research thesis and may, at a future date, be published in an academic journal. Please rest assured that all the necessary steps would be taken to ensure you remain anonymous in these publications. First, your name will be changed and you will be allocated a pseudonym. Second, all identifiable details will be removed (e.g., sports club/team). Finally, all names used in interviews and diaries will be changed (e.g., coach). The publications resulting from this study may include quotations from the interview or diary, but will include no identifiable statements.

**Who can you contact if you have any questions about the project?**

If you have any questions about the study then please contact the lead researcher, Kimberley Humphrey (Kimberley.Humphrey@chi.ac.uk tel: 07732597667) or the research supervisor Dr Melissa Day (m.day@chi.ac.uk tel: 01243816322)

**Who can you contact if you have a complaint about the project?**

Should you have any concerns then please contact Dr Andy Dixon – Director of Research  
– Email [a.dixon@chi.ac.uk](mailto:a.dixon@chi.ac.uk): Phone 01243 812125

Thank you for taking the time to consider being involved in this study. If you would like to participate or if you have any further questions then please contact me on the telephone or email listed above.

Kind Regards  
Kimberley Humphrey

**Participant Consent Form**

PLEASE READ THE FOLLOWING CAREFULLY AND ANSWER ALL STATEMENTS

**An examination into the stressors experienced in the onset phase of injury, the barriers to support provision and the promotion of adaptive coping**

- |  |        |
|--|--------|
| 1) I have read and understand the information sheet about this research project, as provided in the information sheet ( <b>version reference/date</b> )  | Yes No |
| 2) I have had the opportunity to consider the information, ask questions and have received a satisfactory response   | Yes No |
| 3) I understand that if I feel uncomfortable in any way during the study I have the right to decline to answer any question, end the interview or withdraw at any time without giving a reason | Yes No |
| 4) I understand that all information will be anonymised and that my personal information will not be released to any third parties   | Yes No |
| 5) I understand that relevant sections of the data collected during the study may be looked at by responsible individuals from Chichester University   | Yes No |
| 6) I understand that any information given maybe used in future reports, articles or presentation  | Yes No |
| 7) I agree to participate in this research.  | Yes No |

Your name (print) .....	Researcher's name (print).....
Your signature.....	Researcher's signature.....
Date.....	Date.....

**Thank you for your time**

***Copies of the signed consent form should be retained by the Researcher and the Participant***

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# Part One Introduction

## How to Fill In Your Diary

**Thank you for agreeing to help us with our study. Here are some pointers to bear in mind when filling in your diary.**

- I am interested in aspect of your life during your injury - not just problems directly associated with your injury
- Try to be completely when recording in your diary, whatever you write will remain confidential between you and I.
- Remember that this is diary. I am interested in finding out as much as possible about your injury and your experiences of the injury process. So please tell me as much as you can about yourself - no matter how unimportant it seems. For example, if you felt in a lot of pain after moving awkwardly or you read an article that made you smile or frustrated that your injury stopped you doing something - I would like to know. If you are unsure of whether to tell me about something or not, please include it - I would rather have too much information than too little.
- There is to how much you can write down. Each day will be different, so please try and include what you can for that day. If you cannot fit everything on one page, continue on one of the spare sheet located in the back of each part, just remember to include the date of the entry.
- Please don't worry about spelling, grammar or 'best' handwriting, I only ask that you try to write as clearly as possible using a pen.
- Try to fill in the diary, I would encourage you to try and record something you wish to share as soon as possible following it happening - multiple entries on any one day are good. If you cannot make an entry for a particular day, then fill it in the following day. However, do not try to fill the diary in any later than one day after the entry was due.
- If you miss the odd days, please do not give up on the whole weeks diary. Just start again on the next day you are able to fill in, and leave the other pages blank.
- If you have any questions about your injury diary, please email ([kim@sportinfo.org.uk](mailto:kim@sportinfo.org.uk))

## Example Diary Entry

1. How do you feel about your injury today?  
(Choose only 3 words that describe how you feel)
  
2. Please tell me how you feel about being injury today - what have you noticed? If you are struggling to write then check the prompts on page **NUMBER**

## Diary Prompts

The following prompts are offered to help you should you struggle to know what to write. They are offered only as a guide so please don't feel that you have to stick to them.

- How you think your injury has affected your daily routine
- Anything that you found difficult, e.g. making a cup of tea or talking to team mates
- Anything you did to help you cope with the difficulties you were faced with, e.g. rested on the sofa or spoke to friends
- Anything you did that made you feel happy, e.g. went for coffee with friends
- Anyone you talked to about your injury, e.g. family and friends; medical professionals such as doctors, nurses, physiotherapists; coaches; or teammates.
- Anything you noticed after talking about your injury, e.g. feeling sad or confused or happy
- Anyone who gave you advice or help, e.g. family and friends; medical professionals such as doctors, nurses, physiotherapists; coaches; or teammates.
- Any advice you found useful and why.
- Anything you saw or read that made you feel good or bad

## Appendix I

### Athlete Creative Non-Fiction Stories

#### Benefits Module: Michael's Story

Drawing up outside the centre, Tom swings the car in to the bay. Taking a moment to line it up with the white markings, before pulling the handbrake up and switching off the engine.

“Thanks mate, I really do owe you one.” I say, as I unclip my seatbelt. Nah, no worries. How long do you think you’ll need?” Tom asks, as he fiddles with the volume dial. “About half hour or so, I only need to check in with Sam to update my rehab for this week, is that okay?”

“Yeah sure, no worries mate. I’m just going to run over to Sainsbury’s and then to Subway. What do you want?” Tom ask. “Just the usual, a BMT on Italian please mate” I reply. “Got it!” Tom replies, with the briefest of nods.

I yank my rucksack out of the footwell and push the door open. Taking a moment to swing my legs out one at a time. Normally this is just one smooth motion but being four weeks post-injury, I am still worried that the pain will return. I shift my weight in the chair, making sure to keep it spread evenly and not to favour one leg over the other. *Sams instructions*. “I’ll meet you back here in about an hour” Tom call as the door shuts. “Yeah mate, sounds good” I reply.

The sun beams down my neck as I make my way towards the clinic door. It's only 20 meters away but my eyes are locked onto the asphalt, carefully crafting the flatest route possible. *Watch the pothole, avoid the divet ahead, what the raised curve*. Thankfully I no longer need crutches to move about, but that does not make the challenge of walking any less difficult when your ankle is unstable.

Approaching the door, my pace slows to a stop. I draw a deep breath in, *you’ve got this* I remind myself. With a sudden surge of confidence, I step through the door and make my way into the waiting room. “Michael Simmonds, to see Sam please” I say approaching the reception desk. “Ah yes, take a seat” she replies, gesturing to the brown leather sofa propped against the wall. I turn to make my way over, just as Sam appears up the corridor. “Mike, you ready?” Sam asks. “Yeah sure, just give me a minute” I reply as I concentrate on shifting my weight so i can follow him.

“Take your time” he replies, with a cheeky grin.

“I’m getting quicker, I’ll have you know” I quip, as I follow him up the corridor. A pale blue corridor that is lined with frosted glass that hides the strength and conditioning room. “I can see you are” Sam retorts with a smile as he slows slightly to wait for me. “So how have things been this week?” He asks as we enter treatment room A and closes the door behind us. “Take a seat Mike” Sam offers, gesturing to the chair.

“Better!” I enthuse, as I pop my rucksack on the floor and take a seat. “I’ve been doing my exercises and it definitely feels stronger. I actually feel like I want to try running on it... Any chance that can happen soon?” I ask, trying to conceal my hope. “Well, any pain or swelling?”

“Nope, nothing. Is that good?” I enquire. “Yes it’s a good sign. It means we can move your rehabilitation on this week, particularly as your range of motion was excellent last week.”

“Awesome!”

“But first I just want to see how you are coming along with the heel raises and resistant band exercises I set last week, and then we will pop you on the treadmill and go from there. Sound okay to you?” Sam asks. “Sure, lets do it” I reply, enthuse.

“Great! When you're ready pop your shoes and socks off and let me see those single leg heel raises” Sam states, gesturing to the bed. I slide to the edge of the chair, slipping off my shoes and socks. *Yes! It means I am one step closer to being back in time for the start of the season in September! I just need to keep going with my exercises...* Sam clears his throat and brings me out of my thoughts.

“I just want you to go through the 3 sets of 15 reps of heel raises we did last week, just to make sure everything is good there. So when you're ready use the bed as a support and just take your time, concentrating on keeping your weight centred like last week.” Sam instructs. I nod and wander over to the bed, making sure my feet remain shoulder width apart and horizontal to the bed. Placing my hands lightly on the bed, I slowly raise my heels off the ground and then back down. Pacing myself, *up...1...2...3...down...4...5...6.*

“Looking good Mike, really good control and the ankles looking strong. Keep it going.” Sam offers, as he pauses to check my positioning. “Anything changed since I last saw you?”

“Nah not much really” I reply, as my heels touch down. *One set down, two to go.* Pausing for a moment to step back and give my legs a good shake. “I guess if anything I've been feeling a bit reflective this week. Not being able to train has given

me a lot of time to think about things. It feels like this week, for the first time, I've actually used the time to do something for me."

"In what way?"

"Well, for the first time in for as long as I can remember I was able to go out with girlfriend and my mates on a Friday night. Usually I tend to avoid it as I normally have a game on Saturday's to prepare for but its made a nice change" I say smiling. "That's great to hear Mike. It's very easy to become isolated when you get injured, so its really good to hear that you are making the most of it and getting out and about." I nod in agreement "Shall I do the next set?"

"Sounds good, same as before." I step back to the couch, check my position and begin. *Up...1...2...3...down...4...5...6*

"It's good to hear that you are doing something for yourself, being injured can be a tough ride but it can also bring up opportunities to make changes. Have you noticed any other changes?" he asks, as I watch crouching down to feel my ankle.

"Well actually yeah, now I come to think about it. It has made me reflect on my life a little bit. Even though I love Basketball it has made me realise that there is more to life. I need more of a balanced lifestyle, you know. It really made me step back and look at my life. If anything I realise I have been lucky not to get injured sooner!" Sam interjects "That's 15 reps Mike, great work. You can take a breather... What makes you think you were lucky?"

"Well, take my diet for example. Before the injury I would eat what I kind of wanted with limited thought to it being fuel and it having a purpose, but since the injury I've had time to read a bit more around the subject. So now I'm eating lots more protein and I understand what effects different foods have on me."

"That's great Mike, protein is definitely key when your doing as much exercise as you are and even more so when you are recovering from injury, so that's a real positive. Ready for the last set?" "Yep" I reply, as I reposition myself in front of the couch.

*Up...1...2...3...down...4...5...6.* "That's excellent Mike, keep it going."

"It's weird really, I've spent the past three weeks feeling awful about being injured and just frustrated that I haven't been able to train. Just generally I've been a nightmare to live with as I feel I am missing out on something I love doing. Yet, it feels like I've hit a turning point this past week, where I still miss playing but I actually feel it's becoming more of a learning experience for me."

“That’s a really interesting point there Mike, maybe there is more to learn. Have you thought about heading down to some of your training sessions and seeing what you could take from it?” Sam offers.

“That’s a good idea. Up until this week I haven’t really fancied going to watch, but you may be right. Sometimes in training I never get chance to process what Coach is asking, so this may be my chance. Worst case, I could always use it to work on my ball-handling or free-throw skills.” I reply.

“Makes a lot of sense to be fair Mike. Often its difficult to see the bigger picture when you are just one piece of the puzzle” “Yeah exactly.” I reply in agreement, as I finish the last rep. “How was that?” Sam enquires. “Yeah good, ankle doesn’t feel tired like before.” I reply. “Any pain?” “Nope, nothing. Totally normal” I smile. *Yes, another step closer to being able to return to competition.*

“Excellent! Hop yourself on the bed so I can check your resistance band work.” Sam instructs. I hoist myself on to the bed, and watch as Sam cuts a strip from the green Theraband roll in the cupboard, pausing momentarily to check the length before handing it to me.

“I just want you to go through the plantar flexion exercises we covered last session, so make sure you feet hang off the bed and wrap the band around the base of the foot. Same as earlier the movement need to be slow and controlled. I only want you to go through one set of 10 this time. Okay?”

“Yep, got it” smiling as I shift my weight down the bed to position my feet. Leaning forward I loop the band around my right foot. I recall Sams instructions from the previous session, *point...1...2...up...3...4*. My focus shifts to keeping my movements slow and controlled as I aim to point my toes away from my body and then to the ceiling. Sam clears his throat. “It’s good you’ve noticed some of the positives that can come from being injured. One athlete I treated recently even suggested that his injury helped him to improve as a person.”

“Yeah I can see that. One of the lads rolled his ankle the other day, very similar situation to me. Normally I wouldn’t have given it much thought but I found myself feeling for him, what you call it?”...“Empathy maybe?” Sam offers.

“Yeah that’s it. I found I was more empathic towards him. I was more willing to help him, where as before I may have been a little competitively minded. Its safe to say injury definitely brings you in touch with yourself. I’ve had to learn to manage my



emotions and just be a little bit patient at times...Although don't get me wrong I've still a long way to go." I chuckle. "I think that's the 10."

"Yep spot on Mike, take a rest." Sam remarks as I let my legs relax and lay the band on the bed. "Just one more exercise before we move on to the treadmill. Have you got the band, please?" I pass him the band. "Now, legs together and shuffle down the bed a little, so your ankles hang off a little." I do as Sam asks, taking the now knotted band from him and reaching down to place my feet through the circle he's created.

"Same as last week, I want you to push your foot out against the band. This week we are only going to do 8 reps and then stop. As before slow in, slow out."

"Got it" I reply. *Out...1...2...3...in...1...2...3* I repeat. I manage the set easily and Sam smiles as I hand him back the resistance band. "Great work Mike. How does the ankle feel?" Sam asks. "Totally fine to be honest. So what now." I ask. "Well now, we will do a bit of treadmill work. So pop your trainers and socks on and meet me outside at the treadmill" Sam explains as he moves to props the door open and exits across the corridor into the strength and conditioning space. As I hop off the bed and reach to grab my trainers I take the opportunity to perch on the edge of the chair while I slide my socks and trainers on. Double checking they are laced up before I leave. I exit the treatment room and head over to meet Sam at the treadmill on the other side of the room. The strength and conditioning space, looks like an expensive home gym. It's decked out with various weight machines and pieces of exercise equipment, some of which I have no clue as to what they do. I smile at Sam, as I make my way over.

*I am so ready for this*

"Hop on Mike" Sam suggests enthusiastically. As I step on I pause to let Sam attach the emergency stop clip to my top. "So we are going to take this very slow. You are going to be working for 5minutes, 4 minutes will be walking with the last minute being a gentle run. Any questions?"

"Nope! Is it sad I'm excited to do this" I ask.

"Well maybe a little" Sam replies with a cheeky smile.

Setting the treadmill to 5mph I feel it spring to life under my feet. The idea of running for the first time feels me with warmth. The treadmill quickly gets up to speed and its a nice leisurely pace, not too easy but not too hard. *You've got this nailed!* Sam chirps up, "Going back to what you said earlier, I totally agree about being able to balance your emotions. Just think back to four weeks' ago and how your outlook has changed, it's

more positive. You're a lot more upbeat about the rehabilitations and even when we have had little setbacks you've realised you could overcome them"

"That's a good point. I hadn't thought about it like that. I definitely feel mentally stronger because of it. Even though I know I'm not there yet, I feel I can deal with things that I might not have been able to deal with before. I've had to figure out how to make things work while not to get so down on myself."

"Exactly, it shows real character development Mike. Just remember though that it's still okay to have moments or even days when you don't feel like that. It's not about being positive all the time, but recognising how you feel and acting accordingly." I nod in agreement.

"So, how does the ankle feel?" Sam checks. "Totally fine to be honest." I say. "Great! If anything changes then you need to let me know asap, okay?" Sam asks "No worries boss, I'll let you know." I quip back. As the treadmill whirls on in the background, I ponder what other positives have come from my injury experience. *I'm doing better at work, I'm more punctual, able to manage my time and I have been able to put more effort into the reports I've got due!*

Sam brings me back to reality "Still good?" "Yep all good" I reply. The first two minutes have flown by. "There is one other area the injury has helped with." I mention to Sam. "What's that?" he asks "Well I now know a lot more about my physiology, potential risks and my physical limitations, thanks to our sessions" Sam chuckles. "Good point! Hopefully you also know a little more about the do's and don'ts for next time, as well."

"Absolutely" I say with a smile. "Don't forget I won't ignore what my body is telling me in future. I realise I need to listen to what my body is trying to say."

"Good to hear...right your 4 minutes of walking are up, I am now going to up the speed of the treadmill to a gentle run. Any issues then press the stop button or step off to the sides. Got it?" Sam asks. "Totally" I say beaming. The bleep of the treadmill signals the increase in speed, 6mph...7mph...8mph. Sam let's it rest there. "Try that for a minute" I feel my body settle into the pace, as my feet pound the surface of the treadmill. I feel almost graceful, which is surprising considering I am moving just a fraction faster than a tortoise. *This is great! I can't believe I am running again.*

The bleeps return...8mph...7mph...6mph...5mph down to 0. I breath a deep sigh and smile. "So how do you feel now?" Sam asks. "Good. I don't think I would

want to push it much more but I don't feel any pain and it wasn't uncomfortable, so I presume that is good sign?" I inquisitively ask.

"Spot on, it shows the ankle is strong enough to start working a walk to run protocol, but you need to be patient with it. So homework over the next week, is to keep working the exercises I gave you last week. I also want you to start working up to a run, this week we keep it very simple. You are aiming for 30 minutes and you will be working in 5 minute intervals, with 4minutes being a walk followed by a minute run. Do not push it beyond this even if it feels good, and make sure you give yourself a 2 day rest period in between. If all is good next week we can slowly begin to up it. Sound good?"

"Sounds great to me, thanks Sam. Same again next week" I reply. "Yep" Sam replies as I grab my stuff and head out. I make my way down the corridor towards the door. "See you later" I signal to the receptionist as she smiles back. I head towards Tom's car, I can see him munching on his subway and my stomach growls.

"Alright" he nods. "Alright" I reply, as I get in the car. "Good session?" he ask.

"Yeah great actually, I managed to run today so thats a start."

"You be careful son!" he smirks as he hands me my order.

"Where now?" he asks though a mouthful of sandwich. "How about some FIFA at mine?" I ask "Perfect, let's go" he replies as he inserts the key into the ignition and the car springs to life.

## **Culture Surrounding Sport Injury Module: David's Story**

[Week 1 - 14 Days until the World Championships]

Shifting from side to side, I fumble with the label of my water bottle. Glancing up, my eyes lock with Simon, and he nods. "*Just parallel bars to go*" I remind myself. Bringing my arms forward I shake and flex my hands, wrists and shoulders to ease the stiffness of this weeks training camp. Everything aches today, but then again I don't think a day goes by when something doesn't hurt!

The familiar thud of a dismount signals the end of Carls routine, a small step on landing but overall pretty good. My turn, "*you've go this, last piece of the competition*". Today parallel bars is the last piece in a six piece control competition we are doing in the final run up to the World Championships. One of the last chances for the Clive, our

Performance Director, to make sure selected squad members are on track. For me, all I need is a clean routine and that would be enough to take first place. Commotion erupts as the coaches scurry to get the apparatus ready. Grabbing the chalk bag and honey, I join Simon at the parallel bars for a few adjustments. In seconds we are set and I take my starting position.

We've opted for the easier routine as it's been an intense week at the camp. The judge acknowledges that they are ready and I swing up to start. The first half of the routine flows easily, hitting each skill. Following a successful straddle front...I kick up to handstand, popping up to hit the vertical...180 pirouette...deep breath...arching my back I begin the descending swing under the bars... straddling my legs as I swing through for the catch...but something is off. A shooting pain radiates from my left hand as I grab the bars. *"Come on one skill! Suck it up and hide the pain."* I chastise myself. Kicking back up to handstand... I pause for a moment before completing the final descent and a double front dismount to finish. A small step on landing but that should be enough.

Heading towards my bag, I glance at Simon. His furrowed brow hinted that he knew something was not right. Although, I shouldn't be surprised. He's been my coach for the past 11 years, he's practically a second father. I dip my head and turn away, avoiding his gaze. *"You idiot, how could you make a mistake on the Tippelt, you've been doing that skill since you were 13 years old! Why now, Worlds are just two weeks away!"*

"David"

Simon startles me out of my chastisement

"What happened? I saw your hand placement was off and then you screwed up your face"

"Umm..." *should I tell him?* Hidden behind my back, I rotate my hand and the throbbing pain intensifies.

"I don't know, my hand placement was all wrong on the Tippelt! As I caught the bar I felt a sharp pain in my left wrist"

"Let me have a look." Simon snaps, as I slowly present my wrist. With that he waves to Alistair, the team physiotherapist. Grabbing his bag he jogs over. I notice Clive rise from his chair out of the corner of my eye and start to make his way over.

"Whats up?" Alistair asks perplexed.

"I v..."

"He said he felt some pain in his left wrist, after one of the catches!" Simon interjects. I fall silent.

Alistair steps in and takes hold of my wrist, positioning my left hand up to face me. “Okay, tell me if and when it hurts”

Preparing for the pain, I look on as Alistair pokes and prods my wrist. Nothing. *How can that be? I’m sure I felt something, god they will think I’m making it up.* I notice Simon’s eye’s roll as he lets out an exasperated sigh.

“What if we get him to try the end part of the routine again, it may have been a little bump” he pouts.

“There is a bit of swelling on the outside of your hand, David” Alistair states as he runs his finger down the right side of my wrist. “How about if I press here?” Alistair asks.

“Shit!” I blurt out, blinded by the sudden pain that radiates before quieting to a dull throb.

“And this?” Alistair asked, placing one hand around my wrist and then using the other to manipulate my hand to the right. Again the pains sharp but dulls out.

“Yes, it starts off intense but then eases out when you take the pressure off. It also feels like its clicking when I move it”

“Okay, great! On the plus side is I don’t think it’s broken but I reckon we should get it x-rayed just to be sure. My guess at this point is that you have sustained something called a Triangular Fibrocartilage Complex tear or TFCC for...”

“So what does that mean for the World Championships? Can he still compete?” Clive interrupts abruptly. I press my lips together in anger “*He didn’t even ask me if I was okay, he’s only ever interested in if we can compete*”

“Lets get the x-ray done first before we jumped to any decisions on whether he can or can’t compete!” Alistair stats.

“Right! Well Alistair you make sure David gets the x-ray sorted and then find me when you get back. I want to know where we stand as soon as possible”

[3 hours later]

I stare at the ceiling, the ice-cold water trickles down my arm and onto the treatment couch. The towels damp from the ice. I glance over at Alistair who is busily typing away at the computer. He’s just gotten off a telephone call with the team doctor. The sullen expression on his face suggests it’s not the news we were hoping for. So I brace for the conversation we are about to have.

The door to treatment room 1 swings open, as Clive and Simon finally arrive. “So

what did the x-ray show?" Clive demands.

"It's not broken, which is good. However, after more of a detailed assessment I reckon he has a TFCC tear. What I can't tell you is how severe it is at this point, for that we would need an MRI."

"Okay" Simon states optimistically

"Having just got off the phone with the medical team, our professional opinion is that he be pulled from the competition."

"What?! No!" I shout. "There must be something you can do, I want to complete!" *I've worked too hard to earn my place in the team and with this injury I may lose my spot on the team.* An unfamiliar wave of emotions flushes over me. Fear, panic, anger I can't decide which, they all seem to be bubbling away.

"I'm really sorry David, I know that's not what you want to hear but you run the risk of seriously hurting yourself further if we push your wrist without treating it. Without resting it for at least a few weeks it makes the need for surgery more real." Almost as if thinking aloud, Clive chimes in

"With the existing injuries we have in the squad, David is our best shot of qualifying for the team finals."

"Agreed" Simon states very matter of factly.

"There must be something we can do, Alistair" Clive asks.

"It may be possible to help the inflammation with a cortisone injection, rest and then usually rehabilitation tools, but it's just a guess. As I said before without the MRI we cannot be certain of how badly the wrist is injured. Ultimately the decision needs to come from David, as only he can tell us how it feels." All three turn to face me. "What do you think, David?" Clive asks. *Oh crap!* I say to myself. *Competing with an injury is not ideal; but I can't see there a way around it, not if I want to go to Worlds!*

"Okay lets at least try" I say.

"Great! We'll leave you to get started and I'll see you on Monday for training." Clive states as he rushes out the door with Simon. Again the familiar wave of anger flushes over me. *Why does he act like that, he just makes me feel invisible at times.*

"Right!" I'm distracted by Alistair business like tone and turn to focus on him.

"David, pop yourself on the chair next to the couch and take the ice off for the moment." I do as instructed keeping one eye on Alistair bustling around the room. He retrieves various packets and potions from the cupboards and draws. "As I mentioned earlier, the injection will hopefully help to reduce the swelling and pain around the joint.

However, it does mean that you will have to do restrictive training for the next few days and wear a splint, okay?”

“Yes. How is this going to be different to other cortisone injections I’ve had before?” I asked quizzically

“Well it won’t be much different. As before will get you set up comfortably. I will apply something to numb the area around the site and then use the ultrasound to help guide me to the right spot. Then it is a case of injecting the cortisone solution, applying a plaster and you are good to go. The whole process should take no more than a few minutes.” Alistair explains. Whilst I watch Alistair get everything ready I try my best to ignore the knots bouncing around in the pit of my stomach. *Whilst this isn’t my first cortisone injection, it is the first time I have had one in a joint. With a sport like gymnastics you have to be prepared to put your body through a lot of stress. Getting a cortisone injection isn’t a new experience for me. I was pretty much competing with the help of cortisone injections three years ago, following a shoulder injury on high bar. It’s for this reason I think very few people could do what we do, day in day out. None of us ever go into a competition feeling 100% right. I think we’ve just learnt to put up with it, we’ve learnt to be resilient.* I’m brought back to the present when Alistair asks “Can you feel anything?”

“No” I reply as I watch him tickle the outside of my wrist.

“Okay, we are good to go then.” I turn away as he picks up the needle. No time at all passes and Alistair chimes “Three, two, one and we are all done. How was that?” I feel my shoulders relax and I breathe a sigh of relief. I hadn’t even realised I had been bracing myself.

“Surprisingly okay. I thought it was going to hurt but the anaesthetic you applied obviously helped, so thanks”

“No worries” Alistair replied as he strapped up the brace for my wrist.

“You’ve got three days off before the final week of World’s prep starts. You are to wear the splint 24 hours a day, only taking it off to shower or to complete the rehabilitation exercises I give you. No load bearing activities or training, am I clear” David stated, pausing momentarily for me to agree.

“Yes, no problem” I replied

“Good. I will see you 10am on Monday and we will go from there. Any issues, you have my number so call me. Any questions?”

“Not at the moment” After Alistair ran through my exercises and how often I should

ice my wrist, I made my way back to the dorm to collect my stuff. Everyone else had already gone, which made the process pretty easy. As I grabbed the last few pieces of clothes from the wardrobe, my mind was flooded with questions. *What if I've got this wrong? This isn't ideal but what other choice do I have? If I don't try I will lose my spot on the team for Worlds.* All I know is that I sensed this course of action it was going to hurt me in the long run. Clive was right, without me we have less chance of qualifying for the finals. The team needs me! Now all that matters is getting to Worlds, I can rest after the competition.

[Week 2 - 7 Days until the World Championships]

Tapping my feet, I glance at the clock....10:10. Sitting back in my chair *Where is he?* I question. As I finish the thought I see Alistair bounding down the hall. "Sorry David, traffic was a bit mental today" he states while unlocking the door to treatment room one.

"Come in and pop yourself on the chair again." I follow Alistair in and drop my bags on the floor.

"So how has it been?" Alistair questions

"Better. It felt pretty sore for the first 12 hours but gradually felt better over the weekend. I even felt comfortable enough to try the exercises with load, as you suggested. So I'm pretty hopeful." I replied grinning from ear to ear.

"Well that is good news but I don't want you get your hopes up too much it is still very early doors. Being able grip a can of beans and twist is very different to the skills you need to me able to withstand. Let me have a quick look at your wrist" Just like on Friday, Alistair position my left hand up to face me and proceed to prod and poke around my wrist. As he moved to the right side I drew a deep breath, preparing for the pain. "Relax David" Alistair said softly. "I'm going to move your wrist to the right again" Drawing a deep breath in, I could feel Alistair slowly begin to move my hand to the right. "Hows that?" Alistair asks gently.

"Surprisingly good" I confirm while breathing a sigh of relief. "Again that's good news but let's see how we go. I want your keep the splint on and keep icing it and doing your exercises for the moment. I am happy for you to do conditioning and skill work, providing it does not involve your wrist."

"How long for?" I ask

"At least for the next day or so. I am in the gym tomorrow so we can go through



some skills and see where you are. How does 8am sound? I will give Clive a call in a minute and explain where we are. Again any issues then drop me a message, okay?"

"Yes, 8am is fine. No training that involves my wrist, I need to keep my splint on and make sure that I ice it and do my exercise, got it!" I grab my bag, head out the door and make my way across the courtyard to the training gym. That is one of the best things about being based at Lillieshall everything is within walking distance.

It's 8am and I am the first to arrive at the gym. I didn't sleep well last night. All morning my stomach has been in knots, *What if I can't compete. What if I lose my spot in the squad. Goodbye Worlds.* I've tried everything to shake the feeling of impending doom but nothing has worked. I sit down and get myself sorted. Rummaging around I grab a couple of ibuprofen. After a few bites of my cereal bar I pop a few in my mouth and grab a swig of water. As a group we've often joked that if you shook a gymnast we would rattle from the amount of painkillers inside our bodies. This is a daily part of competitive sport, most athletes I know tend to take a couple of painkillers, tape up your injuries nice and tight and way they go. For us its just another day at the office.

My head snaps round as Clive walks in talking to Alistair. I turn my attention back to getting ready. Jumping up I walk over. "Good morning Clive, Alistair"

"Morning David" Alistair replies.

"Are you ready to go, I need to know what I am facing. If you hadn't made the mistake we wouldn't be in this position" Clive states as he walks over and sits down on the bench. My stomach plummets and I feel my shoulders slump, that is tough to hear. Alistair walks over and places a hand gentle on my shoulder "You ready?" He asks while offering me a reassuring smile.

"Yeah lets do this" I sigh.

"I know you mentioned that you had been able to move the exercises on over the weekend but I need to see how much your wrist is able to cope with to get idea of if you are going to be able to compete the more complex skills needed. So get yourself warmed up and we can go from there."

8.30 am. "Right im ready Alistair." I chirp. "Brill. Right to begin with we are going to start small. just a few lines of forward and backward rolls. Okay?"

"Yep, not a problem!" as I turn to get started. Bending forward I bend towards the ground, my right hand leading the way with my left slowly following. Both hit the ground and I kick to roll over and up. *Okay a little stiff not no pain.* I think to myself. For the rest of the rolls the feeling remains the same, but I hesitate less with each roll.

“Any pain?” Alistair asks.

“Not really, but it does feel a little stiff.” I reply.

“Okay. Now try them again but this time kick up to handstand. Again going both forward and backwards, please.”

“Sure” I reply. My enthusiasm carries over into the first forward roll into handstand. As I kick up to handstand I feel the familiar throbbing pain in my wrist, but not as bad. *It will pass*, I tell myself. Three rolls in the pain is still hanging around. *Maybe its just when I go forward*. Turning round I start the line of backward rolls to handstand. As my hand starts to come into contact with the floor and I push up, the pain begins to build. At the top of my handstand the pain is at its worst, I kick down and shake my wrist as I get up. *Go away. Please leave me alone!*

“What do you feel David?” Alistair asks

“Same as before just a little niggle.” I lie

“Well if there is any pain, you need to be honest. Are you sure?” Alistair asks.

“Yes I’m sure” I reply. I sense he doesn’t believe me but goes along anyway.

“Okay we are going to ramp it up a little bit. I want you to do two handstand half turns and then move on to complete two flairs with a half spindle. Okay?”

“Yep, got it” I reply cheerfully, trying to mask my apprehension. *Let’s take this one move at a time*. Taking a deep breath I step forward and kick up to handstand. The pain shoots through my hand. With every hand step, the pain reminds me it’s there...keeping me company. I quickly kick down. *One more to go!* I move through the handstand as quickly as possible but the pain is intense, tough to ignore. I take a moment to compose myself. I feel Clive’s gaze burning down my neck, his words echoing in my mind. *If you hadn’t made a mistake we wouldn’t be in this position*. I shake my head to make them go away. Taking a deep breath I hop and step into the first flair, immediately I shooting pain radiates from my wrist.

“Dammit” I blurt out as I collapse in a heap. Slamming my hands on the floor. My blood runs. *How could you have failed?* I know this is the end. *I can’t even muster a simple floor skill*. As I begin to get up I see Alistair making his way over, but Clive stays where he is.

In amongst my rapid breath I confirm my thoughts to Alistair “I want to complete but I just can’t do it. I can’t stand the pain!”

“I know, David. You tried and honestly I think it’s the best thing for you at this

stage. Get yourself dressed and we will go get an MRI done so we know what we are dealing with.” As I stand up to get ready, I look round to see the door swing shut and

Clive is gone.

## Appendix J



# Application for Ethical Approval

### Section A: Basic information

<b>A1: Title of study:</b>	<b>Implementing an Educative Tool for Sport Injury Rehabilitation Practitioners</b>		
<b>A2: Name of Applicant:</b> (in collaborative projects, just name the lead applicant)	Kimberley Humphrey		
<b>A3: Position of Applicant</b> (e.g. UG/Masters/PGR student, academic)	PGR student		
<b>A4: Programme of study:</b> (for UG or taught Masters students only)			
<b>A5: Department of Applicant:</b>	Sports and Exercise Sciences		
<b>A6: Checklist to ensure application is complete.</b> Have you prepared the following documents to accompany your application for ethical approval, please tick the appropriate column for each of the following:			
<b>Document</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
Confirmation of Ethical Approval of any other organisation (e.g. NHS, MoD, National Offender Management Service)	<input type="checkbox"/>	<input type="checkbox"/>	X
Recruitment information / advertisement (e.g. draft text for email/ poster/social media/letter)	<input type="checkbox"/>	<input type="checkbox"/>	X
Information sheet for participants	X	<input type="checkbox"/>	<input type="checkbox"/>
Information sheet for carers/guardians	<input type="checkbox"/>	<input type="checkbox"/>	X
Information sheet/letter for gatekeepers e.g. Head teacher, teacher, coach	<input type="checkbox"/>	<input type="checkbox"/>	X
Consent form for participants	X	<input type="checkbox"/>	<input type="checkbox"/>
Assent form for younger children	<input type="checkbox"/>	<input type="checkbox"/>	X
Documentation relating to the permission of third parties other than the participant, guardian, carer or gatekeeper (e.g. external body whose permission is required)	<input type="checkbox"/>	<input type="checkbox"/>	X
Medical questionnaire / Health screening questionnaire	<input type="checkbox"/>	<input type="checkbox"/>	X
Secondary information sheet for projects involving intentional deceit/withholding information	<input type="checkbox"/>	<input type="checkbox"/>	X
Secondary consent form for projects involving intentional deceit/withholding information	<input type="checkbox"/>	<input type="checkbox"/>	X
Debrief sheet to give to participants after they have participated	<input type="checkbox"/>	<input type="checkbox"/>	X
<b>Statements about completeness of the application</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
For research involving under 18s or vulnerable groups, where necessary, a statement has been included on all information sheets that the investigators have passed appropriate <i>Disclosure and Barring Service</i> <sup>5</sup> checks	<input type="checkbox"/>	<input type="checkbox"/>	X

<sup>5</sup> Working with under 18's or other vulnerable groups may require a Disclosure and Barring Service Check. Contact HR@chi.ac.uk if you are not sure whether you have an up to date and relevant DBS check or if you require more information. Do note that a DBS check may take several weeks to obtain.

I can confirm that the relevant documents listed above make use of document references including date and version number	X		
I can confirm that I have proof read my application for ethical approval and associated documents to minimise typographical and grammatical errors	X		

**Declaration of the applicant:**

I confirm my responsibility to deliver the research project in accordance with the University of Chichester's policies and procedures, which include the University's 'Financial Regulations', 'Research Ethics Policy', 'Data Systems and Security Policy' and 'Data Protection Policy' and, where externally funded, with the terms and conditions of the research funder.

**In signing this research ethics application form I am also confirming that:**

- The research study must not begin until ethical approval has been granted.
- The form is accurate to the best of my knowledge and belief.
- There is no potential material interest that may, or may appear to, impair the independence and objectivity of researchers conducting this project.
- Subject to the research being approved, I undertake to adhere to the project protocol without deviation (unless by specific and prior agreement) and to comply with any conditions set out in the letter from the University ethics reviewers notifying me of this.
- I undertake to inform the ethics reviewers of significant changes to the protocol (by contacting the clerk to the Research Ethics Committee (research@chi.ac.uk) in the first instance).
- I understand that the project, including research records and data, may be subject to inspection for audit purposes, if required in future, in keeping with the University's Data Protection Policy.
- I understand that personal data about me as a researcher in this form will be held by those involved in the ethics review procedure (e.g. the Research Ethics Committee and its officers and/or ethics reviewers) for five years after approval and that this will be managed according to Data Protection Act principles.
- I understand that all conditions apply to any co-applicants and researchers involved in the study, and that it is my responsibility to ensure that they abide by them.
- For the Student Investigator: I understand my responsibilities to work within a set of safety, ethical and other guidelines as agreed in advance with my supervisor and understand that I must comply with the University's regulations and any other applicable code of ethics at all times.

Signature of Applicant 

Date: 19/03/2019

*(if you haven't typed in your name and title of study in the Header of the document then please write your name and title below to ensure that this page links to the rest of the document, otherwise leave this blank)*

Name of applicant: Kimberley Humphrey

Title of study: **Implementing an Educative Tool for Sport Injury Rehabilitation Practitioners**

## Section B: Authoriser assessment and approval

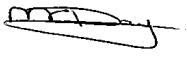
Where Applicants are students (undergraduate or postgraduate) supervisors should authorise this form; where applicants are staff members their line manager (or nominated signatory) should authorise this form.

<b>B1: Name of Authoriser:</b>	Dr Melissa Day
<b>B2: Position of Authoriser:</b> (e.g. supervisor, line manager)	Supervisor
<b>AUTHORISER:</b> Please categorise the application (A, A+ or B) ensure that the application form and all of the required documentation are complete before signing this application. <b>Authoriser assessment: (tick as appropriate – see Section 10 of the Research Ethics Policy)</b>	
<p style="text-align: right;"><b>Category A:</b> Proceed with the research project.</p> <p><i>Undergraduate applications:</i> Form and documentation retained at Department level. <i>Masters, PhD and staff applications:</i> Form and documentation forwarded to the Research Office <i>research@chi.ac.uk</i></p>	X
<p style="text-align: right;"><b>Category A+:</b> (for placebo controlled studies or similar see Appendix 12) Proceed with the research project.</p> <p><i>Undergraduate applications:</i> Form and documentation retained at Department level. <i>Masters, PhD and staff applications:</i> Form and documentation forwarded to the Research Office <i>research@chi.ac.uk</i></p>	
<p style="text-align: right;"><b>Category B:</b> Submit to the Ethical Approval Sub-group for consideration. <i>research@chi.ac.uk</i></p> <p>Proceed only when approval granted by the Chair of the Research Ethics Committee</p>	
<p><b>Authoriser, please provide a comment on your assessment of the research project and for those projects involving vulnerable groups that you are authorising as Category A please justify this classification in the box below. As a further point, do make appropriate reference to any other codes of practice in your discipline particularly if you think that the proposed research may be in tension with those codes.</b></p>	
<p><i>Comment:</i></p>	

### Authoriser's declaration:

- I have read the Research Ethics Policy and this has informed my judgement as to the category of assessment of this application.
- I understand that the applicant has taken account of the Research Ethics Policy and other relevant University policies in preparing this application.
- For Supervisors: I understand my responsibilities as supervisor, and will ensure, to the best of my abilities, that the student investigator abides by the University's Research Ethics Policy at all times.

**Authoriser, please complete this table making it clear which version of the application form you are approving:**

Version of the form (e.g. original version/ amended version following REC sub-group comments)	Signature of authoriser	Date
Version 1		19/03/2019

**For RO use: IF CATEGORY B:** Signature of the Chair of the Research Ethics Committee.

Signature: ..... Date: .....

*Please note that the Research Office will retain all applications for ethical approval for 5 years after the research project has ended as stated in the University's Data Protection Policy.*

**Section C: Ethical Review Questions begin:**

<p><b>C1. Does the study involve human participants?</b></p> <p>Participants in research are taken to include all those involved in the research activity either directly or indirectly and either passively, such as when being observed part of an educational context, or actively, such as when taking part in an interview procedure.</p> <p>NB: the University does not conduct research on animals. If your proposed project involves animals in any way please seek advice from the Research Office before proceeding.</p>	<p>Yes</p>
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**If answer to C1 is 'No' then you do not need to complete this form and you do not need to seek formal ethical approval. Nevertheless, you are required to conduct your research in accordance with the Research Ethics Policy (REP) and Researcher Code of Conduct.**

## **C2. Why should this research study be undertaken?**

Brief description of purpose of study/rationale

Following a meta-synthesis of the psychosocial sports injury literature (PhD study one) a number of key themes were developed which represented current knowledge and understanding in this research area. To ensure this information is effectively disseminated, an online survey (PhD study two) aimed at understanding continuing professional development (CPD) needs of sport injury rehabilitation professionals (SIRPs) was undertaken. Several key points around effective CPD delivery were raised including the need for materials to be accessible (e.g. delivered away from a classroom, self-directed and online), relevant to the audience (e.g. pitched at the appropriate tone and free from jargon) and practical in nature.

Therefore, the aim of this is to explore the creation and implementation of a narrative intervention to improve the translation of knowledge within the context of sport injury. The study aims to combine the insights collected from the meta-synthesis with athlete narratives to present an intervention designed to improve SIRPS understanding of the psychosocial sports injury literature.

## **C3a. What are you planning to do?**

Provide a description of the methodology for the proposed research, including proposed method and duration of data collection, tasks assigned to participants of the research and the proposed method and duration of data analysis. If the proposed research makes use of pre-established and generally accepted techniques, e.g. established laboratory protocols, validated questionnaires, please refer to this in your answer to this question. (Do not exceed 500 words). If it is helpful for the panel to receive further documentation describing the methodology then please append this to your application and make specific reference to it in box 3a below.



**Participants**

Approximately 8-10 participants will be recruited to the study through a purposeful technique, word of mouth, and the use of social media to advertise the study (Twitter).

To participate in the study, participants should be:

- 1.) Qualified and practicing as a sport injury rehabilitation practitioners
- 2.) Over the age of 18 years
- 3) Have access to the internet

**Procedure**

This study will take place in four stages and use a combination of methods, including developed athlete stories, sets of reflective questions and short explainer videos. For each of the seven themes (identified from the meta-synthesis) a athlete narrative and explainer video will be created to depict the key points of learning for that topic.

Once created each theme will follow the same stages. First, the participants will read the athlete narrative. Second, they will then complete set one of the reflective questions (e.g. what part of the story grabbed your attention and why?) Third, participants will then be required to watch the short explainer video and finally, complete set two of the reflective questions (e.g. how has the animation influenced you?)

**Analysis**

A short survey will be undertaken to assess the effectiveness of the intervention.

**C3b. When are you planning to do it?**

Please enter the anticipated start and end dates of your study (Consider at which point you will be involving human participants, this would typically be in the data collection/information gathering phase of the project but may be earlier):

19th March – June 2019

**C4. Where will the research be undertaken?**

Briefly describe the location of the study, provide details of any special facilities to be used and any factors relating to the study site/location that might give rise to additional risk of harm or distress to participants or members of the research team together with measures taken to minimise and manage such risks:

All of the material for the course will take place online.

### C5. Who are the participants?

Please indicate the number of participants in each of the groups in the table below. If the precise number of participants is not known then please make an estimate. Please enter '0' in the 'Numbers in study' column for those groups that are not included in your study. Please note that the examples provided of different sorts of vulnerability are not an exhaustive list.

Participant	Numbers in study
<p align="center"><b>Adults with no known<sup>6</sup> health or social problems i.e. not in a vulnerable group:</b></p>	<p align="center"><b>8-10</b></p>
<p><b>Children aged 16-17<sup>7</sup> with no known<sup>3</sup> health or social problems:</b></p>	
<p><b>Children under 16 years of age with no known<sup>3</sup> health or social problems:</b></p>	
<p><b>Adults who would be considered as vulnerable e.g. those in care, with learning difficulties, a disability, homeless, English as a second language, service users of mental health services, with reduced mental capacity<sup>8</sup></b></p> <p>Identify reason for being classed as vulnerable group and indicate 'numbers in study' in next column adjacent to each reason (expand the form as necessary):</p> <p align="center">.....</p> <p align="center">.....</p>	
<p><b>Children (aged &lt;18) who would be considered as particularly vulnerable e.g. those in care, with learning difficulties, disability, English as a second language</b></p> <p>Identify reason for being classed as vulnerable group and indicate 'numbers in study' in next column adjacent to each reason (expand the form as necessary):</p> <p align="center">.....</p> <p align="center">.....</p>	
<p><b>Other participants not covered by the categories listed above (please list):</b></p> <p><b>List other categories here:</b> .....</p>	

<sup>6</sup> Known to the researcher

<sup>7</sup> A summary of UK definition of 'Child' : [http://www.nspcc.org.uk/Inform/research/briefings/definition\\_of\\_a\\_child\\_wda59396.html](http://www.nspcc.org.uk/Inform/research/briefings/definition_of_a_child_wda59396.html)

<sup>8</sup>[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/224660/Mental\\_Capacity\\_Act\\_code\\_of\\_practice.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/224660/Mental_Capacity_Act_code_of_practice.pdf)

**C6a. Is there something about the context and/or setting which means that the potential risk of harm/distress to participants or research is lower than might be expected?**

**Answer: No**

*Consider if the study is part of routine activity which involves persons with whom you normally work in a typical work context e.g. Teachers working with children in a classroom setting, researchers in the performing arts working with performers, sports coaches working with athletes/players or research involving students in an academic setting.*

*Optional: Further information to justify answer to 6a*

**C6b. Are there any conflicts of interests which need to be considered and addressed?**

*(For example, does the research involve students whom you teach, colleagues, fellow students, family members? Do any of the researchers or participants have any vested interest in achieving a particular outcome? See section 9 of the Research Ethics Policy (REP))*

**Answer: No**

If conflicts of interest are envisaged, indicate how they have been addressed:

**C7. How will potential participants in the study be identified, approached and recruited?**

Please include details of:

- Basis for selection of participants in the study: *e.g. participants must be clinically obese adults; participants must be social workers over the age of 50; participants must have achieved Grade 5 in an appropriate musical instrument*
- Any criteria for exclusions (e.g. *participants declaring a heart problem will be excluded*)
- How the selection criteria will be applied *e.g. Health questionnaire completed prior to joining the study*

The means by which the participants will be recruited (*e.g. through an advert, through a school, through a sports club*), please be specific about the medium of the advertisement/recruitment information (*e.g. poster, email, website, social media, word of mouth*) and mention any third parties who may be involved in supporting the recruitment.

Through word of mouth, participants will be identified using the inclusion criteria outlined above

If further participants need to be recruited then social media will be used. This will include the use of Twitter, Facebook and specific forums relevant to healthcare practitioners.

**C8. Will any payment, gifts, rewards or inducements be offered to participants to take part in the study? See section 11 of the REP.**

**Answer: No**

Please provide brief details and a justification:

**C9a. Is the process of the study and/or its results likely to produce distress, anxiety or harm in the participants even if this would be what they would normally experience in your work with them?**

*See section 5 of the REP.*

**Answer: No**

If you answered Yes to 9a, please answer 9b below:

**C9b. Is the process of the study and/or its results likely to produce distress or anxiety in the participants *beyond* what they would normally experience in your work with them?**

**Answer: No**

If yes this Application must be categorised as 'B'

Please provide details:

**C9c. What steps will you take to deal with any distress or anxiety produced?**

E.g. have a relevant professional on-hand to support distressed/anxious participants. Careful signposting to counselling or other relevant professional services. Other follow-up support.

In the unlikely event that any distress occurs the following steps will be taken:

a.) The researcher will provide contact details of local support services that may provide assistance (interview and survey).

**C9d. What is the potential for benefit to research participants, if any?**

E.g. Participants may gain an increased awareness of some issue or some aspect of themselves.

The participants may benefit from reflecting on their own practices, as well as increasing the awareness of the psychosocial aspects of sport injury.

**C10a. Will the study involve withholding information or misleading participants as part of its methodology? (Please refer to sections 6.11 and 10 of the REP for further guidance)**

**Answer: No**

Please provide details if this has not already been explained in section 3a:

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C10b. Do you envisage that withholding information or misleading participants in this way will lead to any anxiety, distress or harm?

**Answer: No**

Please justify your answer to 10b.:

It is the University Research Ethics Policy that all projects with the exception of double blind placebo trials (or similar) will be categorise as Category B. Double blind placebo trails (or similar) may be categorised as Category A+.

**C11a. Does your proposal raise other ethical issues apart from the potential for distress, anxiety, or harm?**

**Answer: No**

**C11b. If your answer to C11a. was 'yes', please briefly describe those ethical issues and how you intend to mitigate them and/or manage them in the proposed study, otherwise jump to C11c.**

**C11c Does your proposed study give rise to any potential risk of harm or distress to yourself or other members of the research team? OR is there any risk that you could find yourself in a vulnerable position as you carry out your study.**

**Answer: No**

If you answer 'yes' to either of these points please explain briefly what the risks are and what steps you are taking in order to minimise and manage those risks.

For example does your study involve you in 1-1 interviews in a private setting that might suggest precautions need to be taken relating to lone-working (See section 9 of the REP), Have you considered the likelihood of a participant(s) disclosing sensitive information to you about illegal or harmful behaviour and what actions you would take in such circumstances?

**C12. Will informed consent of the participants be obtained and if so, how?**

**Answer: Yes**

*See section 6 of the REP to help you answer this question. Section 6.2 covers research that involves observing behaviour in a public place where gaining informed consent may not be practical or feasible.*

*When and how will informed consent be obtained? Will it be written or oral consent bearing mind that oral consent will not be considered adequate other than in exceptional circumstances and must be appropriately justified in your application?*

*NB: Ethical approval should, as a principle, be sought before research participants are approached.*

Before the partaking in the courses, the first page will outline the aims of the study and requirements of participation. Participants will consent by clicking on to continue the course.

**C13. Is there anyone whose permission should be sought in order to conduct your study?** E.g. Headteacher of a school, parents/guardians of child participants.

**Answer: No**

*When and how will informed consent be obtained and from whom? Will it be written or oral consent bearing mind that oral consent will not be considered adequate other than in exceptional circumstances and must be appropriately justified in your application? If you are seeking to gain 'loco parentis' consent from a school rather than seeking individual parental consent please describe your reasoning.*

**C14. Do you need to seek the permission of any other organisations, individuals or groups other than outlined in section 13?** E.g. the Research Ethics Committee of partner or participating organisations. Organisations like the NHS and the Prison Service have specific systems for granting ethical approval for research.

**Answer: No**

*Please note that all applications must go through the University of Chichester Application for Ethical Approval process and that they must meet the Research Ethics Policy (REP) requirements. Other prior approval will be taken into account but will not in itself be sufficient to gain University Research Ethics Approval. Each application must normally be accompanied by evidence (e.g. formal statement from the appropriate Ethics Committee) confirming approval by the external body (and any concerns/issues identified). In cases where an external body requires prior approval from the University Research Ethics Policy (such as some NHS work) the Research Ethics Committee (REC) may grant in principle approval pending written confirmation of ethical approval by the external body.*

Please describe the permission that is required and how you will be seeking that permission: Please attach any relevant documentation e.g. letter, that relates to the seeking of the relevant permissions.

**C15. It is normally required that a participant's data is treated confidentiality at the outset of, during and after the research study. Will this be the case?**

**Answer: Yes**

If the answer is 'yes' please describe how you will be maintaining the confidentiality of participants' data. If the answer is 'no' please justify the exceptional circumstances that mean that confidentiality will not be guaranteed. *See section 7 of the REP.*

*Please make reference to measures you are taking to ensure security of data from the point of data collection, transfer from notebooks/voice recorders etc., onto secure devices, to the point of analysis, sharing and final storage. Actions should be in accordance with the University's Data Systems and Security Policy and Data Protection Policy (in particular see Appendix 4 of the Data Protection Policy for guidance for University staff).*

Please provide details:



**C16. It is normally required that the anonymity of participants is maintained and/or that an individual's responses are not linked with their identity. Will this be the case?**

**Answer: Yes**

If the answer is 'yes' please describe how you will be maintaining the anonymity of participants. If the answer is 'no' please justify the circumstances that mean that anonymity will not be guaranteed. *See section 7 of the REP. NB: in group studies it is likely that each individual in the group will be aware that others in the group are participating in the study – they are therefore not anonymous to each other. However, their identity should not normally be associated with their individual responses. In some studies individual participants may not want their identity known to other participants and the study must be designed and undertaken accordingly.*

Please provide details:

--

**C17. Will participants have a right to comment or veto material you produce about them?**

**Answer: Yes**

Please give details and if your answer is 'no' then please provide a justification.

--

**C18. Does the project involve the use of or generation/creation of audio, audio visual or electronic material (e.g. Dictaphone recording, video recording) directly relating to the participants?**

**Answer: Yes**

If yes, please describe how the collection and storage of this will be managed bearing in mind data protection and anonymity issues (*see section 7 of the REP*).

--

**C19. How will the participants be debriefed?**

It is expected that wherever possible all participants will receive some form of debriefing. This might be a verbal debriefing or a written debriefing depending on the context of the study. Debriefing provides an opportunity to remind participants of the procedures and outcomes of the research, and to provide further assurances on areas such as confidentiality, anonymity, and retention of data. Projects that intentionally withhold information or deceive as part of their methodology must include a written debrief sheet. *(Please refer to sections 6.1 and 6.2 of the REP for further guidance)*

**C20a. Might the research entail a higher than normal risk of damage to the reputation of the University, since it will be undertaken under its auspices? (e.g. research with a country with questionable human rights, research with a tobacco company. See section 9.3 of the REP).**

**Answer: No**

**C20b. If your answer to 20a was yes, please describe the potential risk to the University's reputation and how this risk will be mitigated. If no, please jump to C20c.**

**C20c. Does the research concern groups or materials that might be construed as extremist, security sensitive or terrorist?**

If so please describe how you will manage the research so that it is not in breach of the Terrorism Act (2006) which outlaws the dissemination of records, statements and other documents that can be interpreted as promoting or endorsing terrorist acts. For example, relevant documents, records, information and data pertaining to the research can be stored on a secure University server. Contact the Director of Research in the first instance if you are unsure as to how to proceed.

No.

**C21a. Will your results be available in the public arena?** (e.g. publication in journals, books, shown or performed in a public space, presented at a conference, internet publication and placing a dissertation in the library) *see section 8 of the REP.*

**Answer: Yes**

If yes, please provide brief details:

*NB: Have you considered the date by which it would be impractical for participants to withdraw their data from your study? Once you have begun to analyse the data or prepare it for publication it is reasonable for you to state that it will not be possible for a participant to request that their data is removed from the study. You need to make this clear on the information sheet.*

The study will form part of the PhD thesis which will be available publically. Further, results may also be published in an academic journal.

**C21b. Will your research data be made available in the public arena?**

Certain research funding bodies require that research data is made Open Access i.e. freely available to the public. The University has a Research Data Policy that outlines the expectations and requirements for researchers at the University. Contact the Director of Research in the first instance if you are unsure as to how to proceed.

**Answer: No**

If yes, please provide brief details as to how the data will be prepared for public access including an overview of the meta-data that will accompany published data sets. Please also confirm that your intentions with respect to making data open access are clearly communicated to participants so that they can provide informed consent:

**C22. Are there any additional comments or information you consider relevant, or any additional information that you require from the Committee?**

*[end of form]*

## **Information Sheet**

### ***Department of Sport and Exercise Sciences***

PLEASE READ THE FOLLOWING CAREFULLY

**Study title:** Implementing an Educative Tool for Sport Injury Rehabilitation  
Practitioners

*We would like to invite you to take part in a research study. Before you decide you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully.*

#### **What is the purpose of the research and how will the research be carried out?**

This study forms one strand of a research project and will prototype an educational intervention that has been designed for sports injury practitioners. Focus within the course will be on the psycho-social aspects of injury. The purpose of the research is to understand your experiences of using this intervention – for example did you find it useful? What did you think of the format and design?

#### **What will you be asked to do?**

You will be asked to complete three modules, each of which will focus on a different aspects of the psychology of sports injury. Each of these modules include 1) A case study/injury story, 2) Some reflective exercises, 3.) An explainer video. After completing these modules you will be asked to provide some feedback on the intervention either in an interview or by answering some questions by email (whichever method is best suited to you).

#### **What are the anticipated benefits of participating in the research?**

I hope that you will find the intervention interesting, informative, and that you will learn about the psychology of sports injury. You may also find it useful to reflect on your own

experiences.

**Are there any risks associated with participating in the research?**

There are no risks associated with this research.

**Do you have to take part?**

No, you do not have to take part in this study. You may discontinue your participation at any time

**Who can you contact if you have any questions about the project?**

If you have any queries or wanted to find out more information about what the research is investigating feel free to contact the researcher Kim Humphrey (Email: khumphr1@stu.chi.ac.uk).

**What happens if you change your mind and want to withdraw?**

As mentioned earlier if you want to withdraw your data, contact the researcher (email address included above) within two weeks of your final feedback interview and the data will be permanently deleted.

**What will happen to the information collected as part of the study?**

Any information collected as part of the study will be stored on a password protected computer, accessed by no one other than the researcher. In the final report write up , you will be anonymised through the use of a pseudonym (fake name). Any details that would identify you (e.g., places) will be removed from your interview transcript.

**Who can you contact if you have a complaint about the project?**

If there are any queries or complaints you can contact the researcher, Kim Humphrey or Melissa Day, the researcher's supervisor (Email: M.Day@chi.ac.uk).

**This project has been approved in accordance with the University of Chichester Research Ethics Policy**

**Thank you for your time**



**Consent Form**

***Department of Sport and Exercise Sciences***

PLEASE READ THE FOLLOWING CAREFULLY AND ANSWER ALL STATEMENTS

**Study title:** Implementing an Educative Tool for Sport Injury Rehabilitation  
Practitioners

- |  |     |    |
|--|-----|----|
| 1) I have read and understand the FAQs page sheet for this research project. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. | Yes | No |
| 2) I understand that my participation in the activity is voluntary and that I am therefore free to withdraw my involvement at any stage, without giving a reason.                              | Yes | No |
| 3) I am aware of the timescales in which I can withdraw my data (as indicated on the FAQs page).   | Yes | No |
| 4) I understand that all information will be anonymised and that my personal information will not be released to any third parties.  | Yes | No |
| 5) I agree to participate in this research.  | Yes | No |

Your name (please print) .....

Researcher's name (please print).....

Your signature.....

Researcher's signature.....

Date.....

Date.....

## Appendix K

### Website Landing Page

## Welcome to the Psychology of Sport Injury Course



We are very pleased to welcome you to the Psychology of Sport Injury Course. Designed to develop your understanding of the psychosocial responses to injury, as well as providing you with some practical ideas to help the athletes you work with. This prototype course, has been developed by incorporating knowledge taken from the sport injury literature. In total 51 papers were examined for information on the psychology of injury. This course focuses on three selected themes that condenses these insights into short and exciting topics. Each specifically designed to fit around your busy life, while being accessible on the move.

I hope you find this resource engaging and that it helps you to develop your skills and understanding around the psychology of sport injury. Throughout each module you will be presented with various forms of information (e.g. short stories, animations), which have been designed to encourage you to reflect on your current knowledge. During these tasks please feel free to write as much as you would like.

[Lets Get Started](#)

# START HERE

Thank you for taking the time to be a part of this research study. Please read the following sections before answering the questions below.

### ▲ Who am I?

To briefly introduce myself, my name is Kimberley Humphrey and I am PhD student in the Department of Sport & Exercise Sciences at the University of Chichester. My PhD research is investigating the practical application of the psychosocial aspects of sport injury, specially geared towards sport injury practitioners who support athletes through the injury experience.

### ▲ What is the purpose of the research and how will the research be carried out?

This course forms one strand of a research project and will prototype an educational intervention that has been designed for sports injury practitioners. Focus within the course will be on the psycho-social aspects of injury. The purpose of the research is to understand your experiences of using this intervention – for example did you find it useful? What did you think of the format and design?

### ▲ What will I be asked to do?

You will be asked to complete three modules, each of which will focus on a different aspects of the psychology of sports injury. Each of these modules include 1) A case study/injury story, 2) Some reflective exercises, 3.) An explainer video. After completing these modules you will be asked to provide some feedback on the intervention either in an interview or by answering some questions by email (whichever method is best suited to you).

### ▲ What are the anticipated benefits of participating in the research?

I hope that you will find the intervention interesting, informative, and that you will learn about the psychology of sports injury. You may also find it useful to reflect on your own experiences.

### ▲ Are there any risks associated with participating in the research?

There are no risks associated with this research.

### ▲ Do you have to take part?

No, you do not have to take part in this study. You may discontinue your participation at any time.

### ▲ What happens if you change your mind and want to withdraw?

As mentioned earlier if you want to withdraw your data, contact the researcher (email address included above) within two weeks of your final feedback interview.

### ▲ What will happen to the information collected as part of the study?

Any information collected as part of the study will be stored on a password protected computer, accessed by no one other than the researcher. In the final report write up, you will be anonymised through the use of a pseudonym (fake name). Any details that would identify you (e.g., places) will be removed from your interview transcript.

### ▲ Who can you contact if you have a complaint about the project?

If there are any queries or complaints you can contact the researcher, Kim Humphrey or Melisa Day, the researcher's supervisor (Email: [M.Day@chi.ac.uk](mailto:M.Day@chi.ac.uk)).

### ▲ Has this project been ethically approved?

Yes, this project has been approved in accordance with the University of Chichester Research Ethics Policy



## Consent Form

1) I have read and understand the FAQs page sheet for this research project. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. \*

Yes  No

2) I understand that my participation in the activity (recorded interview) is voluntary and that I am therefore free to withdraw my involvement at any stage, without giving a reason. \*

Yes  No

3) I am aware of the timescales in which I can withdraw my data (as indicated on the FAQs page) \*

Yes  No

4) I understand that all information will be anonymised and that my personal information will not be released to any third parties \*

Yes  No

5) I agree to participate in this research. \*

Yes  No

Signed \*

First

Last

Email \*

Occupation \*

Date of Birth (DD/MM/YYYY) \*

Consent

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