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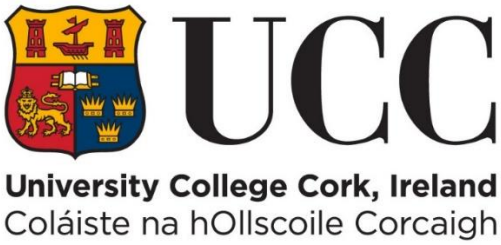

Investigation of the challenges facing student-athletes in Irish Higher Education

Thesis presented by

Jean-Francois Gomez

for the degree of

Doctor of Philosophy

University College Cork

School of Education

Head of School: Dr Fiona Chambers

Supervisors: Dr John Bradley, Dr Fiona Chambers

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DECLARATION

This is to certify that the work I am submitting is my own and has not been submitted for another degree, at either University College Cork or elsewhere. All external references and sources are clearly acknowledged and identified within the contents. I have read and understood the regulations of University College Cork concerning plagiarism.

Signed

……..

Jean-Francois Gomez

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Non vedo l'ora di esplorare questo nuovo capitolo con te ...

Noah, cette thèse t'y est dédié: souviens toi toujours que rien n'est impossible ...

“It is the time you have wasted for your rose that makes your rose so important”

Le Petit Prince

Antoine de Saint Exupéry

Abstract

The student-athlete in the Higher Education system is confronted by multiple challenges and has to be able to manage successfully various spheres (academic, sport, social, psychological…). A wealth of academic research has investigated the student-athlete in North America; however, the same cannot be said about the research conducted among student-athletes in Higher Education in the Republic of Ireland. Drawing on a mixed method approach (initially with a qualitative method via a series of interviews, then with the integration of a self-report measure questionnaire), this doctoral thesis aims to provide a specific understanding on how student-athletes are able to balance the various struggles they will encounter while endeavouring to successfully study and compete at the same time.

The purpose of the first study aimed at investigating the challenges of combining high-level sport with academic demands. A series of interviews with nine elite student-athletes (three females, six males) indicated that each student-athletes had developed and adopted various distinct approach towards training management. Most of the student-athletes interviewed experienced different levels of setback in their study and athletic performance due to overtraining or burnout. This study highlighted the need to create a dedicated support network in order to educate and empower student-athletes and coaches.

As these struggles are multi-layered and specific to the student-athlete persona, the second study of this doctoral thesis is a longitudinal study aimed at monitoring student-athletes stress and recovery levels over an academic semester. The aim of this study was to provide an insight into the various stressors affecting the stress

recovery state of these student-athletes. Nine student-athletes (4 females, 5 males) completed the stress and recovery questionnaire from Kellmann et al. (2001) over the course of 12 weeks, which resulted in 108 filled in questionnaire. The results of this study were twofold: firstly, it indicated the student-athlete population having to face multiple stressors over the course of 12 weeks as the student-athletes taking part in this study were exposed (at key times) to high level of stress (conflicts/pressure, fatigue and emotional stress) and decreased level of recovery (which resulted in a state of under recovery and therefore potential overtraining). Secondly, the outcome of this study highlighted a lack of internal validity by some of the subscales and revealed the need to investigate the questionnaire used for this study and realign it in accordance with the Irish student-athlete population needs and specificity.

The third study of this thesis investigated via statistical analysis, the reliability and suitability of the stress and recovery questionnaire used in the second study of this thesis. 174 student-athletes completed this questionnaire anonymously once. A Principal Component Analysis (PCA) followed by a Varimax rotation was used for the General and Sport Specific parts of the questionnaire. The results of this study indicated a lack of suitability of some of the subscales and suggested an improved model fit suitable to the Irish student-athlete population.

The fourth and final study aimed at capitalising on these findings by examining and validate via a statistical analysis the improved model fit suggested in the previous chapter of this study. In order to conduct a new and independent study, a new sample of 165 student-athletes filled in the 39 questions, 12 subscales of the new

model fit questionnaire suggested in the previous chapter. An Exploratory Factor Analysis (EFA) with maximum likelihood was conducted to verify the adequate loading of the subscales across the stress and recovery structure and the strength of the correlations between the subscales. The results of this statistical analysis indicated an acceptable level of internal consistency and a satisfactory factorial validity of the 12 subscales. In accordance with the current academic research, the subscales showed relevance and sensitivity to some of the main stressors affecting the student-athletes therefore indicating the suitability of this self-report monitoring instrument adapted to the student-athlete.

Keywords: student-athletes, Irish Higher Education, stress and recovery, time management, self-report questionnaire, wellbeing.

CHAPTER 1

Introduction

"Student-athletes are young people in transition, developing individuals who, like the rest of us, must confront the formidable challenges of modern-day life in their own distinctive ways"

(Etzel et al., 1996, p. 3)

1.1 Context and Motivation

While working closely with student-athletes in the area of strength and conditioning, I quickly realised (from an anecdotal point of view) that quite often, first year student-athletes would start their academic year with a high level of enthusiasm and idealism. However, a couple of months into this academic semester, they would be relocating their focus to the academic studies (at the expenses of their athletic training). After probing the student-athlete on the cause of their behaviour, they would always mention the need to prioritise academics (as obtaining a degree is the primary goal). Similarly, I would realise that many student-athletes, in the period leading to exams or assignments would harbour distinct signs of athletic weariness and tiredness. Many conversations with these student-athletes always lead to the same reasoning: they were trying "at all cost" to manage athletics and academics while at the same time completely disregarding the recovery process.

I started to look into the depth of the academic research addressing the topic of the student-athletes in Ireland and realised, that despite a wealth of research conducted on the student-athlete in North America, a gap was present in that field as no meaningful academic research was conducted in this specific area in the Republic of Ireland. The first qualitative study (Chapter 3) aimed to understand in what ways student-athletes were able to balance the three spheres (academic, athletic and social) and overcome these struggles that are inherent to the life of a student-athlete (see figure 1.1). The study highlighted the student-athletes being

exposed to various stressors, which steered the next step of this research towards a deeper look into the stress and recovery balance of these student-athletes over an academic semester (Chapter 4). It gave me to opportunity to not only build on years of anecdotal observations but more importantly to provide a more granular context to the first study.

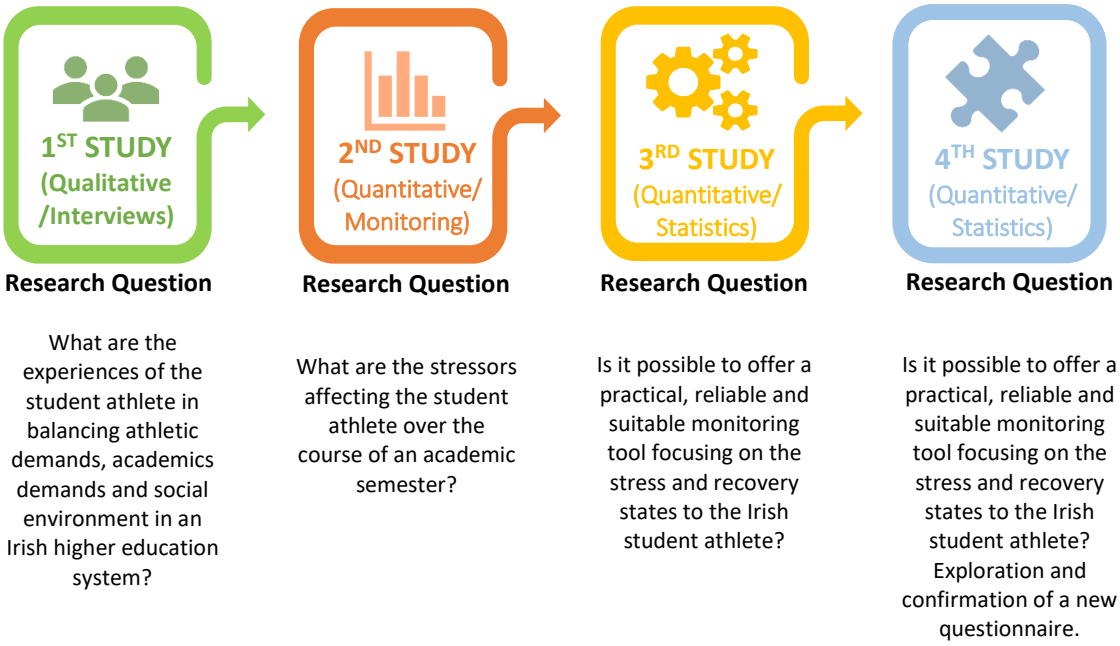

Figure 1.1 Studies pathway

The Recovery Stress Questionnaire for Sport (RESTQ-Sport 52) from Kellmann et al. (2001) provided the necessary tool to conduct this longitudinal study as this self-measure report is designed to monitor the athlete stress recovery state. In light of the feedback and the results of the second study, I realised the monitoring tool I was using was undeniably useful but lengthy and cumbersome. A logical outcome was to try to make this monitoring tool more relevant to the student-athletes'

requirements and stressors. The third and fourth studies of this thesis (Chapter 5 and 6) are the consequences of this realisation as I investigated the validity and reliability of a self-measure monitoring instrument aimed at the student-athlete in Ireland.

The overall aim of the thesis is to address a gap in the academic literature regarding the struggles encountered by student-athletes in a Higher Education institution in the Republic of Ireland.

1.1.1 Insider or Outsider Status?

Social research encompasses (within a shared space) an exchange of ideas and opinions between participants and researchers as it allows researchers to reflect, explore and expand the field they are studying. The 'insider/outsider' status has long been a subject of debate and research among scholars (Merton, 1972; Bondi, 2009; Dwyer et al., 2009; Bourke, 2014; Ryan, 2015). According to Dwyer et al. (2009, p. 58), the status of insider gives the researcher a level of trust from the participants as the uniqueness of shared commonalities allows for greater insight and access to the participant's experiences. However, the outsider status can provide the researcher with a greater collection of data due to their unique vantage point (Ryan, 2015). With many arguments in favour or against, the 'insider/outsider' status presents a stimulating challenge to the researcher and the interpretation of data.

As someone working closely with a wide variety of student-athletes, I had (and still have) the opportunity to witness first-hand the recurrent struggles of these student-athletes. As my unique position would naturally create an insider status to this research, I was very much cognizant of any potential biases. From the very early onset of this research, I adopted a position that can be described as open and authentic with a deep interest in the way student-athletes perceived their environment. Upon reflecting on my research process, I would argue that my insider status provided me with a unique advantage to engage with student-athletes in the quest to answer the first research question. Then again, the insider status can offer a position of weakness as shared assumptions between the researcher and the participant can lead to a lack of data exploration (Chavez, 2008). As I could not obtain an outsider status, a quantitative approach was used to answer the remaining research questions and provide more depth to the already existing data from the first study. Such an approach allowed for a neutral and greater perspective into the student-athletes struggles.

1.2 Aims of the Thesis

The student-athlete has been the subject of in-depth scrutiny since 1960 (Stambulova et al., 2009) but despite the growing amount of interest and academic research on the student-athlete topic, to date, most of the body of research has been conducted on North American collegiate athletes. Although a significant interest in this area is emerging among the European nations since 1990, to date very few academic studies have investigated the various challenges faced by the

student-athlete in the Republic of Ireland in a third level institution. There is an active academic research interest investigating the levels and implications of physical activity among young children in the Republic of Ireland (Kelly et al., 2005; Dobbins et al., 2009; Woods et al., 2010; Bradley et al., 2013; Belton et al., 2014; Chambers et al., 2014; Murphy et al., 2015; O'Brien et al., 2017; O'Brien et al., 2018). However, the unique population that is the Irish student-athlete in a third level institution has been, up to now, neglected in terms of academic research.

The dual career student-athlete topic (a topic that designate people faced with the challenge to combine two careers) has shown a growing interest within the European community as various initiatives aimed at supporting student-athletes have been developed by the European Union in recent years (European Commission, 2012; Pato et al., 2014). Recognising the need to support the student-athlete in both the classroom and their athletic career, the European Union have developed guidelines to promote the development of national policies aimed at supporting dual careers athletes. However, EU Member States have adopted a fragmented approach, which in turn offers contrasting support towards the student-athlete (Aquilina, 2009; European Commission, 2012). The student-athlete with specific characteristics and inherent complexity is not only a student but also an athlete at the same time and above all a person (Pato et al., 2014). Faced with long hours of athletic training, traveling and competitions as well as constant academic pressure, the student-athlete is faced with unique challenges linked to academic, athletic, social and psychological (Pinkerton et al., 1989; Parham, 1993;

Etzel et al., 1996; Ferrante et al., 1996; Papanikolaou et al., 2003; Wylleman et al., 2004; Drew et al., 2018).

In order to address a gap in the literature and to provide a greater understanding of the struggles faced by the student-athlete in an Irish third level institution, the aim of this thesis is to answer the following research questions:

1. What are the experiences of the student-athlete in balancing athletic demands, academics demands, and the social environment in an Irish higher education system?
2. What are the stressors affecting the student-athlete over the course of an academic semester?
3. Is it possible to offer a practical, reliable and suitable monitoring tool focusing on the stress and recovery states to the Irish student-athlete?

1.3 Background of the Research

1.3.1 Thesis Structure

In order to examine the research questions, this thesis was divided into several chapters. As no research to date has been conducted to investigate the balance between the academic, sporting and social sphere among the Irish student-athlete

in a Higher Education institution, it was crucial to start the thesis by examining and developing this research area. Chapter 3 describes the First Study of this doctoral thesis and is centred on the life story of these student-athletes and the way they are managing their experience and life transition over the few years studying in an Irish Higher Education institution. A qualitative method was used in order to understand the student-athlete knowledge and practices. This approach takes into account the participants' perspectives and frame of reference to form (with the researcher reflections) an understanding of the social concept (Flick, 2009).

The aim of Chapter 4 of this thesis outlines the Second Study of this doctoral thesis focus on investigating the various stressors affecting the student-athletes and the quality of any associated recovery activities undertaken by them. In order to achieve this investigation, a longitudinal study was conducted with nine student-athletes over an academic semester (12 weeks). This cohort was asked to complete every week a monitoring questionnaire (the recovery stress questionnaire from Kellmann et al. (2001)) to assess their stress recovery state.

The usefulness of this self-measure monitoring tool to identify the stress recovery state of the student-athlete was demonstrated in Chapter 4, however, the feedback collected during the longitudinal study highlighted the need for a more adapted and suitable monitoring tool in line with the student-athlete requirements and specificities. Chapter 5 of this thesis focused on exploring the suitability of a stress recovery questionnaire adapted to the Irish student-athlete and therefore a

statistical analysis looked to identify which subscales of the questionnaire were more relevant to the student-athlete.

Chapter 6 and the Fourth Study of this doctoral work is dedicated to confirm the usefulness and relevance of the subscales identified in the previous chapters. An original statistical analysis with a new sample of student-athletes was performed and interpreted. This chapter also addresses the relevance of the confirmed subscales in relation to the Irish student-athlete.

1.3.2 Significance of the Study

There is a lack of insight and research into the challenges facing the Irish student-athlete in a Higher Education institution. A greater understanding of the way the student-athletes are dealing with these challenges, linked to a more granular view of the stressors affecting the student-athlete population can provide a greater awareness of the challenges awaiting them. A self-report measure tailored on the Irish student-athlete, designed to inform coaches and athletes on the stress recovery state can potentially lead to student-athlete support programmes, which foster greater lifestyle balance with an improved academic, athletic and wellbeing state.

CHAPTER 2

Literature Review

2.1 Overview

In order to provide some context to the various challenges faced by the student athlete, the following section will provide an overview of the existing literature that relates to the student-athlete from a territorial perspective and will then offer a practical overview of the various impacts of stress on the student, athlete and student-athlete.

The term dual career was first introduced in the White Paper on Sport (European Commission, 2007) and would cover all the necessary requirements to allow athletes to develop a successful elite sporting career while pursuing and combining education and/or work. Various stages are parts of this dual career and would take place over a period of 15 to 20 years (Wylleman et al., 2004; European Commission, 2012). The term student athlete can be found under the dual career terminology.

2.2 The Student-Athlete Support System: a Territorial Conundrum

The socio-cultural perspective and economic context of the athletic and academic environment hugely influence student-athlete support: as for example the North American system, with the National Collegiate Athletic Association (NCAA), created in 1906 to looks after and manage the wellbeing and classroom success of more than half a million student-athletes (National Collegiate Athletic Association, 2018). This association generated more than $ 1 billion in revenue in 2016 - 2017, which can in turn, provide substantial re-investment into support programs aimed at the student-athlete. However, despite recent academic research in Europe investigating the complex student-athlete characteristics and specific initiatives linked to various

political recommendations to the States Members (European Commission, 2012; Pato et al., 2014), a divergent approach still remains between the State Members. This scattered stance leads to a vast spectrum of supports going from insignificant to legislatively enforced structure (Aquilina, 2009). The guidelines to action recommended by the European Commission (2012) express the need to develop a cross-sectorial cooperation between NGB's, education institution and governmental agencies.

The Republic of Ireland is considered as a "laissez-faire" state in relation to the support for the student-athlete with no formal structure in place (Aquilina, 2009), and an educational system lacking a unified and cohesive approach towards a student-athlete support system. Any student-athlete wellbeing and support program relies on the hosting higher education institution provision and willingness to develop an integrated support system. As there is no nationwide coordination and concertation between the Higher Education institutions, such a system inevitably leads to a varied student-athlete experience. For example, some Irish universities have developed some in-depth support program (such as the Quercus in University College Cork and Astra in University College Dublin) while some other universities would have a less developed support system.

In light of these varied structural, economical and sociocultural backgrounds, experiences from a first year student-athlete in an American, French, Russian or Irish third level institution would vary greatly. While it is crucial to understand the

various challenges faced by student-athletes from a macro perspective, it is even more important to contextualise the research via a culture centred approach as it allows for the development of a cultural framework and to become socio-culturally cognisant (Stambulova et al., 2009; Lupo et al., 2015).

2.3 The Student-Athlete: a Hybrid Creature in an Ever-Changing Society?

The student-athlete has been recognised in the literature as a complex character with multiple needs and stressors (Pinkerton et al., 1989; Etzel et al., 1996; Carodine et al., 2001; Watt et al., 2001; Miller et al., 2003; Aries et al., 2004; Wilson et al., 2005), and his/her dual character has been compared to mythical creatures such as the Centaur or Minotaur (Pato et al., 2014). The student-athlete, part student part athlete but beyond all a person, is expected to balance academic requirements ranging from 20 to 30 hours per week and the same amount of time practicing and competing in their chosen sport (Aquilina, 2009, 2013). Academic research has shown that student-athlete motivations fluctuate between countries. For example, the student-athlete in North America is often struggling with academic demands (Adler et al., 1985; Aries et al., 2004), while some student-athletes in Australia do not hesitate to shift their focus towards sports at the detriment of academicals requirements (Cosh et al., 2014). Inversely, some student-athletes in Europe have a tendency to view education as important as their sporting career (Aquilina, 2013). Academic research in the Republic of Ireland investigating the student-athlete topic is extremely scarce. Two studies have looked at the student-athlete from a wellbeing standpoint (Drew et al., 2018; Sheehan et al.,

2018) but so far, no research has been conducted regarding the ability of the Irish student-athlete in a Higher Education institution to successfully combine sport and education (Stambulova et al., 2018). The two studies that investigated the Irish student-athlete focused on mental health and psychological monitoring (Drew et al., 2018; Sheehan et al., 2018). These studies highlighted overwhelmingly the propensity for Irish student-athletes to develop symptoms of depression and anxiety. Drew et al. (2018) conducted research among 185 student-athletes and reported that 31% of them showed moderate to severe symptoms of anxiety. These findings resonate with a study conducted in North America where Hwang et al. (2016) investigating the perceived stress across 19 967 student-athletes: the outcomes of that study showed that the main stressors were related to wellbeing, academics and social context.

While the two Irish studies are predominantly investigating the wellbeing among student-athletes, the results highlight the Irish student as a specific population inclined to have a disturbed wellbeing state due to the exposure to various stressors. Defined by the World Health Organisation (WHO) as the ability to cope with the normal stress of life, a healthy wellbeing state allow the individual to work productively and make a contribution to society (World Health, 2004). Multiple studies have shown the importance to empower student athlete with various tools (such as yoga, mindfulness, mental skills techniques) in order to alleviate stress and regulate the wellbeing state (Denny et al., 2009; Beauchemin, 2014; Goodman et al., 2014; Dubuc-Charbonneau et al., 2015, 2018).

2.4 A (Very) Brief Historical Aspect of Stress

The stress syndrome was initially defined as a bodily process response initiated by either physical or psychological demands on an individual (Selye, 1956). Evolving from the work of Yerkes et al. (1908) which investigated the relationship between arousal and performance, Selye observed that a response pattern of systemic stress is linked to the exposure to a series of stimulus events and therefore can be defined as "the non-specific response of the body to any demand made upon it" (Selye, 1974, p. 137).

However, Selye and his response-based model received criticism as researchers and psychologists viewed stress as a multi-layered, complex problem. Selye's works focused on the physiological reactions to stress but gave little attention to it from a psychological standpoint. A distinction was introduced in the early 1970's between a stress response initiated by a negative (distress) or a positive (eustress) emotion (Selye, 1974): the realisation that homeostasis (a term coined by Cannon (1929) to define the psychobiological self-regulation) could be positively disturbed by stress, (and at fortiori positively impact on athletic performance) became a cornerstone in the development of sport psychology (Papathomas, 2007).

Another important cited research in the area of stress is Richard Lazarus's cognitive-motivational-relational theory. Lazarus explains how cognition, stress and emotion are interconnected: his theory of stress and coping (Lazarus, 1966; Lazarus et al.,

1984), hinges around one's ability to cognitively appraise and categorize a situation in order to respond to it from an 'elicit arousal' and emotional standpoint. Therefore, the same stressor might affect two individuals in different ways as the response to the perceived stimulus is based on 1) their ability to subjectively perceive the stressor(s) and 2) their coping abilities to successfully manage the imposed challenge(s) (Folkman et al., 1980; Lazarus et al., 1984; Folkman et al., 1986). Lazarus, therefore, considers the appraisal of emotions to be a key factor in stress and coping which will directly influences a person's wellbeing.

2.5 The Student and Stress

A significant body of research indicates that students will be confronted by substantial levels of stress during the course of their studies in a third level environment (Nagelberg et al., 1980; Dunkel-Schetter et al., 1990; Fisher, 1994; Murphy et al., 1996; Misra et al., 2000; Aherne, 2001; Drew et al., 2018). The transition between secondary school and the third level is one of the most challenging times for students, as some of them can be facing anxiety and depression (Stewart et al., 1997; Wong et al., 2006; Rayle et al., 2007; Banerjee et al., 2016; Galante et al., 2018) due to a high level of stress. However, others stressors such as time management (Misra et al., 2000), academic stress (Abouserie, 1994), financial difficulties, new responsibilities, speaking in public, sleeping habits and dealing with class workload (Ross et al., 1999; Bulo et al., 2014) are part of the arrays of stressors affecting the students on a regular basis. Above

all, time management is closely linked to stress and academic performance (Macan et al., 1990; Misra et al., 2000) as well as academic stress at times of exams and assessment (Britton et al., 1991; Abouserie, 1994). One of the major sources of increased stress identified by students is related to studying but more specifically to assignments and essays (Misra et al., 2000). The time constraint and the associated increased stress experienced at that specific academic period is rated as one of the top three stressors experienced by students (Robotham et al., 2006).

Within the Republic of Ireland, Aherne (2001) via a series of interviews with third level students in an Irish university, identified various stressors among students: academic stress (over-identification with academic success), social inadequacy and conflict with parents. With similar outcomes, a survey conducted at a national level among the 21 third level colleges in Ireland, showed that the main sources of stress for two-thirds of the students were from academic demands and financial stress (43%) (Hope et al., 2005). These findings from Aherne (2001) and Hope et al. (2005) are similar to the trends already highlighted in the academic research conducted among various student-athletes in North American universities (Etzel et al., 1996; Wilson et al., 2005; Dubuc-Charbonneau et al., 2014; Hwang et al., 2016).

Recently, Deasy et al. (2014) investigated the level of psychological distress (which has been defined as an emotional response to stress by Horwitz (2007)) among a Higher Education institution within the Republic of Ireland. Their findings highlighted that not only 41.9 % of students suffered from psychological distress but also the majority of these students are reluctant to seek professional help

(Dooley et al., 2012; Deasy et al., 2014). The various stressors identified in this study are identical to the one highlighted previously and are centred on studies, financial and social pressure.

2.6 Stress and the Athlete

Training sessions and the physiological stress resulting from the intensity, duration and the type of training will affect the athlete homeostasis (Figure 2.1). The various training sessions occurring over an athletic season are designed to trigger a physiological reaction to stress by creating a level of exercise-induced adaptation on the various functions of the human body (Hausswirth et al., 2013). One of the immediate outcomes of a training session is fatigue, a phenomenon widely viewed as multi-layered and multi-factorial (Halson, 2014) and can be explained by a variety of factors (Phillips, 2015). However, the ability to monitor fatigue is an essential part of training, as an efficient and proactive approach towards it can allow athletes and coaches to optimise training loads in order to prevent over and undertraining. Successful monitoring of the athlete will allow for an appropriate use of the training stimulus at optimal times, managing fatigue, and preventing stagnation or overtraining (Plisk et al., 2003).

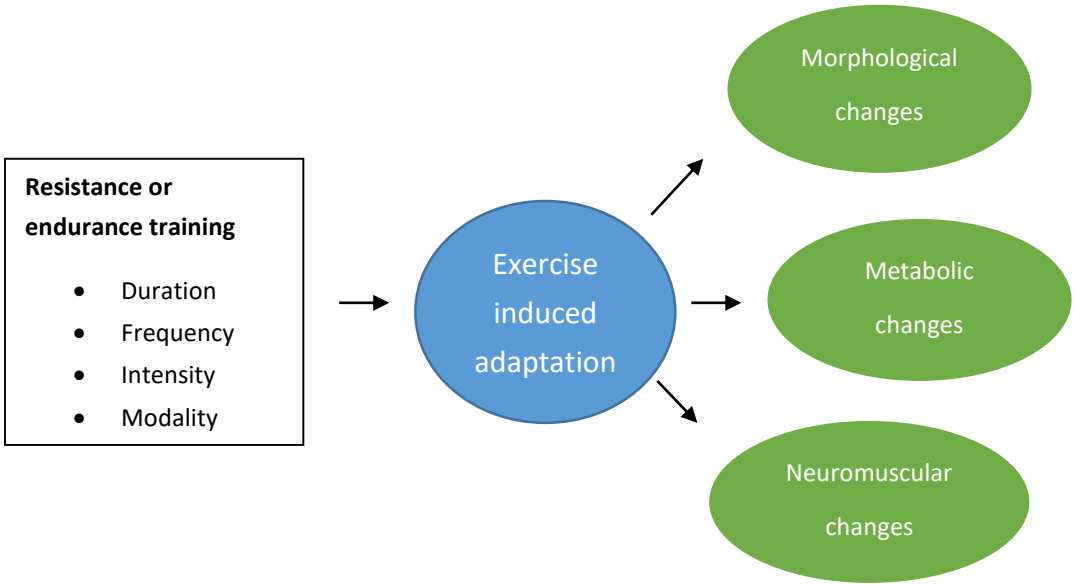

Figure 2.1 Training stimulus and changes in the body, source Hausswirth et al. (2013)

2.7 Student-athlete and Stress

The student-athlete persona and the inherent athletic demands can add an extra layer of stress (Humphrey et al., 2000; Kimball et al., 2003; Papanikolaou et al., 2003) on the individual. Humphrey et al. (2000, p. 41) categorised the causes of stress impacting the student-athletes: (a) academic problems, (b) athletics demands, (c) time, (d) relationships with others, and (e) finances. Among those causes, one of the most prominent stress factors for student-athletes is test anxiety: frequently named as a concern in the area of academic tests and examinations, the dedication of time and mental energy to academic requirements triggers stress in 95 percent of male athletes and 86 percent of female athletes (Humphrey et al., 2000). Stress at times can become so pressurising than 10 % of

student-athletes would require counselling (Hinkle, 1994). As clearly identified by scholars (Selye, 1956; Lazarus, 1966; Lazarus et al., 1984), stress can have negative consequences both from a physiological and psychological standpoint. The consequences of stress for student-athletes have been categorised as follows (Humphrey et al., 2000, p. 43): (a) impact on mental/emotional health, (b) impact on physical health, (c) negative impact on athletic performance, and (d) negative impact on academic performance. Stress can impact individuals on a variety of levels (Figure 2.2); however, student-athletes have a complex profile as they are not only students but athletes at the same time and therefore experience stressors relative to their unique status (Wilson et al., 2005).

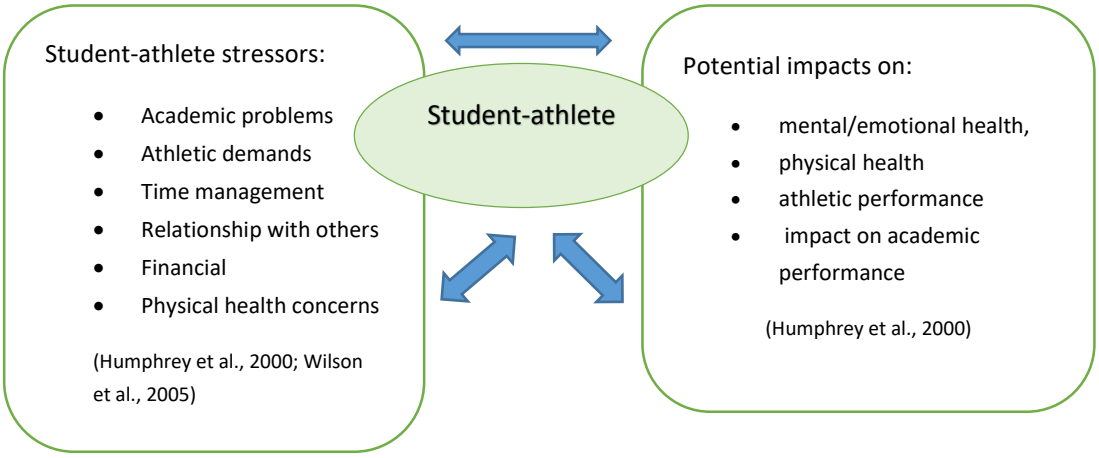

Figure 2.2 The duality of a student-athlete, various levels of stress and the potential impacts. (Humphrey et al., 2000; Wilson et al., 2005)

As a combination of these stressors can impact the student-athlete in multiple ways, it is important to be able to identify the relevant stressors affecting the individual in order to develop, implement support programs and appropriate interventions (McKenna et al., 2004; Wilson et al., 2005).

The student-athlete is always looking at optimising training and academic workload while maintaining a healthy social lifestyle (Adler et al., 1985; Carodine et al., 2001; Miller et al., 2002; McKenna et al., 2004). Faced with those challenges, the student-athlete is often subjected to an undulated level of stress through the course of an academic year. In line with the existing academic research from Wilson et al. (2005), Ferrante et al. (1996), Humphrey et al. (2000) and (Papanikolaou et al., 2003), student-athletes are subjected at key times (such as assignments week and designated study time prior to exams) to a high level of stress and might be subjected to various levels of stress, which can contribute to a disturbance in the stress recovery equilibrium. Without proper planning or monitoring, any imbalances or disturbances can jeopardise student-athletes academic and sporting career (Papanikolaou et al., 2003; Wilson et al., 2005). Due to the specific nature of being a student-athlete, there is a constant shift between being a student and an athlete (Pato et al., 2014; Stambulova et al., 2015) which can lead to a variety of stressors, both from an academic and sporting perspective (Adler et al., 1985; Wilson et al., 2005; Gomez et al., 2018). If unaddressed these stressors can lead to a disturbance of the psychophysical equilibrium, which can trigger tiredness, psychological stress and fatigue (Kellmann et al., 2001). Englobing the biological and psychological system, the psychophysical balance is often affected by the various life daily demands being either too high or too low. However, while it is apparent that stressors experienced by student-athletes are parts of a transactional, multidimensional and dynamic process, sports participation can also become a source of positive stress (eustress) (Kimball et al., 2003).

Athletic training loads are a predominant part of this psychophysical equilibrium: if the training load is not significant enough, the desired training effect will not be reached. In contrast, if the training load become excessive, an opposite effect can be reached and put the athlete at risk of overreaching/overtraining (Kenttä et al., 1998; Meeusen et al., 2012). Much research has been trying to pinpoint and highlight possible physiological, biological, psychological and immunological markers of inadequate stress recovery (Fry et al., 1991; Kenttä et al., 1998) with relative success. But despite a general consensus on overtraining (Meeusen et al., 2012) and various attempts to come up with reliable early warning markers to signal the onset of overtraining, there are limited results in these domains. Kellmann et al. (2001) via the exploration of the overtraining and recovery paradigm, highlighted the multi-dimensional aspect of stress and the importance to properly identify the factors affecting the athlete adaptation to training load but more importantly, the periodization of the recovery process. The same process has been investigated as well by Kenttä et al. (1998) by analysing, conceptualising the overtraining cycle and identify the structural aspects of the recovery process.

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Gomez, J-F. 2019. Investigation of the challenges facing student-athletes in Irish higher education. PhD Thesis, University College Cork.

Please note that Chapters 3,4 & 5 (pp. 39-135) are unavailable due to a restriction requested by the author.

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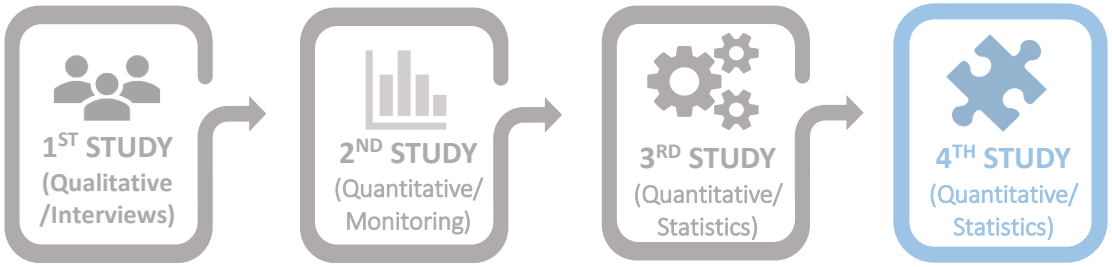
CHAPTER 6

Study Four: Validity of a Monitoring Questionnaire Measuring Stress and Recovery among the Irish Student-athlete



Research Question

What are the experiences of the student athlete in balancing athletic demands, academics demands and social environment in an Irish higher education system?

Research Question

What are the stressors affecting the student athlete over the course of an academic semester?

Research Question

Is it possible to offer a practical, reliable and suitable monitoring tool focusing on the stress and recovery states to the Irish student athlete?

Research Question

Validation of a practical, reliable and suitable monitoring tool focusing on the stress and recovery states to the Irish student athlete

6.1 Introduction

The purpose of Study Four is to examine and validate via a statistical analysis, the new shortened questionnaire developed from the principal component analysis performed on the RESTQ-Sport 52 stress and recovery questionnaire from Kellmann et al. (2001) in the fourth chapter of this thesis. The subscales identified in the previous chapter of this current thesis showed sensitivity and relevance to the student-athlete stressors and recovery associated activities. The shortened questionnaire resulting from the previous statistical analysis keeps the initial two-factor structure (stress and recovery) of the questionnaire. However, in order to confirm the factorial validity of this shortened questionnaire, a statistical analysis with a new heterogeneous sample of student-athletes and using a different statistical method than the one employed by Kellmann et al. (2001) is required (an Exploratory Factor Analysis will be used in this chapter as explained in greater details below) .

Academic research revealed the uniqueness of the stressors affecting the student-athlete (Etzel et al., 1996; Hill et al., 2001; Miller et al., 2002; McKenna et al., 2004; Wilson et al., 2005; Loughran et al., 2008; Lu et al., 2012; Brown et al., 2015; Hwang et al., 2016), but despite growing research in this area, there are to date, very few subjective monitoring scales designed with the student-athlete in mind. Multiple subjective tools (such as the Perceived Stress Scale, Daily Analyses of Life Demands for Athletes, Recovery Stress Questionnaire for Athletes, Acute Recovery and Stress Scale, Multi-Component Training Distress Scale) are able to assess stress and

burnout among athletes (Cohen et al., 1983; Rushall, 1990; Kellmann et al., 2001; Main et al., 2009; Kölling et al., 2015). However, the objective of these self-report measures is to focus on the training stressors experienced by the athlete (Lu et al., 2012). While there is an undeniable benefit to incorporate these subjective self-measures in an athlete training environment (Saw, 2017), the particular nature of the student-athlete and their unique stressors does not necessarily find some relevance with the self-measures tools designed for athletes. The Life Events Scale for Collegiate Athletes developed by Petrie (1992) was developed to monitor the student-athlete life stress and the impact of a negative life stress on the likelihood of injuries. However, the lack of relevant subscales addressing some of the student-athlete specific stressors (such as academics and social) made this instrument not entirely suitable for the student-athlete population. The College Student-athletes' Life Stress Scale (Lu et al., 2012) is another attempt to assess the student-athletes' life stress and with an adequate factorial structure, it supports the reliability of this self-measure report. However, the student-athlete population used for this study were elite athletes in a Taiwan university, and student-athletes in a different culture, environment and socioeconomic context, may encounter different challenges (Etzel et al., 1996; Watt et al., 2001; Loughran et al., 2008; Lu et al., 2012). As well, the subscales of this self-measure tool only focus on the stressors and not on the stress recovery balance. So far, the development of a stress and recovery self-measure monitoring tool specifically aimed at the Irish student-athlete has not been proposed.

The aim of this chapter is twofold: 1. to validate with a new heterogeneous group of student-athletes, the subscales preliminarily highlighted in the statistical analysis in the fourth chapter of this study. 2. To confirm the construct validity of the two structure of stress and recovery for this self-measure tool.

6.2 Method

6.2.1 Measure

Following a principal component analysis of the Recover-Stress Questionnaire for Athletes (RESTQ-Sport 52), and a subscales reduction in line with the feedback provided by the statistical analysis, a questionnaire with 12 subscales and 39-items has been used for this present study (Table 5.8. Page 136). This stress recovery questionnaire used the same format as the RESTQ-Sport 52 and questions are answered on the same seven-point Likert scale. The first question is a “warm-up” question and is not incorporated in the analysis. The 12 subscales are divided between three general stress subscales (1. Social stress, 2. Conflict/pressure, 3. Fatigue), two general recovery subscales (4. Social relaxation, 5. General wellbeing), three sport specific stress (6. Disturbed breaks, 7. Burnout/emotional exhaustion, 8. Fitness injury) and four sport specific recovery subscales (9. Fitness/being in shape, 10. Burnout/personal accomplishment, 11. Self-efficacy, 12. Self-regulation).

6.2.2 Participants and Procedure

The participants for this current study (n = 165 student-athletes) is a pool of student-athletes competing in Rugby, Soccer, Athletics and Gaelic sport whilst studying at an Irish third level institution. In order to keep uniformity with the study conducted in the fifth chapter, this current study has been performed at the same time period as the previous study (over a time span of 3 to 4 days, during the first week of December 2016). Some of the participants used in the previous study have been involved in this study as they were still student athletes. As such, all the participants were selected as they were competing at a national level.

In line with the fifth chapter of this current thesis, University sport development officer and Club coaches were contacted directly and asked to disseminate to the student-athletes via email, a document explaining the purpose of the study (in accordance with the Ethical Standards of the University. See appendix E) and a direct link to the online questionnaire. In order to conform with the study conducted in the previous chapter, the participants of this present study were:

- Selected from the teams already involved in Chapter 5
- Voluntarily participated in this study
- Answered this questionnaire once using an online platform or via a paper format (as preferred).

6.2.3 Statistical Analysis

The aim of this chapter is to verify the internal validity and the structural integrity of the two factor structure (stress and recovery) of the 12 subscales questionnaire suggested in the fourth chapter. An Exploratory Factor Analysis method was used over Principal Confirmatory Analysis as the prime aim of this chapter is to assess the validity of the subscales from the new questionnaire (The EFA was used as it was not a replication study and as the number of constructs/underlying factor structure were already identified). A maximum likelihood analysis with oblique rotation and two fixed factors was conducted to verify: 1) The adequate loading of the subscales on the stress and recovery structure 2) The strength of the correlations between the subscales. The maximum likelihood method was the preferred statistical methods as it allows for a significant testing of factors loading and correlation among factors (Cudeck et al., 1994). Cronbach alpha values (Cronbach, 1951) and inter items correlation values (Briggs et al., 1986) were calculated for internal consistency. The inclusion of inter items correlation provides a greater interpretation of internal reliability as a small number of items within a scale can give a low Cronbach alpha (Starkweather, 2012; Dunn et al., 2014). In order to assess the factorability of the data, Bartlett's test of sphericity (Bartlett, 1954) and the Kayser-Meyer-Olkin (KMO) measure of sampling adequacy (Kaiser, 1970, 1974) have been again used. The KMO index suggests a minimum of 0.6 and a significant Bartlett's test ($p<0.5$) for an appropriated factor analysis (Tabachnick et al., 2007).

6.3 Results

6.3.1 Internal Consistency

The Cronbach's alpha score was above 0.60 for the majority of the subscales (Table 6.1). One subscale scored below the 0.60 thresholds with 0.52 for the social stress subscale. However in order to obtain a greater depth, an inter-item correlation was conducted (which measures to what extent a score on one subscale is related to all of the other subscales)and the results obtained were greater than $r = 0.20$ which is the recommended minimum value (Clark et al., 1995) (Table 6.2, 6.3, 6.4, 6.5). Therefore, the social stress subscales was retained for the Factor Analysis.

		Cronbach Alpha
General Stress	1. Social stress	0.52
	2. Conflict/Pressure	0.65
	3. Fatigue	0.61
General Recovery	4. Social recovery	0.68
	5. General well being	0.85
Sport Specific Stress	6. Disturbed breaks	0.71
	7. Emotional Exhaustion	0.67
	8. Injury	0.74
Sport Specific Recovery	9. Being in Shape	0.72
	10. Personal Accomplishment	0.65
	11. Self Efficacy	0.77
	12. Self-Regulation	0.70

Table 6.1 Internal consistency (Cronbach α)

Inter-Item Correlation Matrix General Stress			
	Scale 1 social stress	Scale 2 Conflict/ Pressure	Scale 3 Fatigue
Scale 1 social stress	1.000	.568	.415
Scale 2 Conflict/Pressure	.568	1.000	.462
Scale 3 Fatigue	.415	.462	1.000

Table 6.2 Inter-Item Correlation Matrix General Stress

Inter-Item Correlation Matrix General Recovery		
	Scale 4 social relaxation	Scale 5 General well being
Scale 4 social relaxation	1.000	.651
Scale 5 General well being	.651	1.000

Table 6.3 Inter-Item Correlation Matrix General Recovery

Inter-Item Correlation Matrix Sport Specific Stress			
	Scale 6 Disturbed breaks	Scale 7 Burnout emotional exhaustion	Scale 8 Fitness injury
Scale 6 Disturbed breaks	1.000	.529	.432
Scale 7 Burnout emotional exhaustion	.529	1.000	.437
Scale 8 Fitness injury	.432	.437	1.000

Table 6.4 Inter-Item Correlation Matrix Sport Specific Stress

Inter-Item Correlation Matrix Sport Specific Recovery				
	Scale 9 Fitness being in shape	Scale 10 Burnout personal accomplishment	Scale 11 Self efficacy	Scale 12 Self-regulation
Scale 9 Fitness being in shape	1.000	.404	.575	.437
Scale 10 Burnout personal accomplishment	.404	1.000	.493	.399
Scale 11 Self efficacy	.575	.493	1.000	.653
Scale 12 Self-regulation	.437	.399	.653	1.000

Table 6.5 Inter-Item Correlation Matrix Sport Specific Recovery

6.3.2 Factorial Structure

The Bartlett test of sphericity (Bartlett, 1954) reached $p < .05$ for the Sport and General scales. The KMO was 0.602 for the general scales and 0.697 for the Sport scales. The Bartlett test reached statistical significance and the KMO was above 0.6, which supports the use of a factor analytical model with this data set.

The two-factor model (stress and recovery) fitted accordingly within the general and sport specific subscales (Table 6.6 and 6.7). Each factor analysis conducted with the subscales and with the items lead to a two-factor structure. The factor loading

for the subscales and the items of the subscales are showing a factor load above the required acceptable threshold (> 0.40).

	Factor 1	Factor 2
1. Social stress	0.706	
2. Conflict/pressure	0.773	
3. Fatigue	0.633	
4. Social relaxation		0.678
5. General well being		0.989
Eigenvalues	**1.605**	**1.340**
% of Variance	**32.09**	**26.79**

Table 6.6 General subscales factor loadings

	Factor 1	Factor 2
6. Disturbed breaks		0.731
7. Burnout/emotional exhaustion		0.719
8. Fitness injury		0.619
9. Fitness/being in shape	0.624	
10. Burnout/personal accomplishment	0.563	
11. Self-efficacy	0.889	
12. Self-regulation	0.758	
Eigenvalues	**2.118**	**1.528**
% of Variance	**30.25**	**21.85**

Table 6.7 Sport specific subscales factor loadings

6.4 Discussion

The purpose of the fourth study was to examine the validity of the recovery and stress subscales of this remodelled questionnaire. The reliability and internal consistency were acceptable with the majority of the subscales scoring above the Cronbach alpha acceptable level of 0.60. Only one of the social stress subscales scored (with 0.52) below the threshold. The majority of the sport specific level reached a level of 0.70 (except two subscales: emotional exhaustion (0.67) and personal accomplishment (0.65)) while the majority of the general subscales reached a 0.60 and above level (except the social stress subscale with 0.52). These results are in line with the findings from the third and fourth chapters of this present thesis: the general section of the questionnaire reached a lower Cronbach alpha than the sport specific section, which indicates a lack of internal reliability from the general part of the questionnaire. These results are comparable to the findings of Davis et al. (2007) who identified a lower Cronbach alpha for the general subscales comparing to the sport specific subscales. As highlighted by Gonzalez-Boto et al. (2008) and Kallus (1995), one of the reasons for a low scoring subscale could be due to the fact that the construct of the general module is based on a formulated dimension aimed at the general population. As such, the meaning of the questions could have a different interpretation by the athlete population (as well as within the context of this present research, the student-athlete population). From a statistical point of view, the limited number of items within the subscale can result in a low Cronbach alpha (Nunnally et al., 1967; Sijtsma, 2009; Starkweather, 2012; Serbetar et al., 2016) and an inter-item correlation calculation is preferable as it can

provide a greater understanding of the strength of the inter correlations of the subscales (Tabachnick et al., 2001; Starkweather, 2012). In the present study, the inter-item correlation calculated within the two factors component for the general and sport specific subscales indicated a result above the required threshold and directed it to an acceptable level of correlation, which gives support to the reliability of the subscales used in this questionnaire.

The construct validity (the adequate measure of stress and recovery) was also acceptable with a clear distinction between the stress and recovery loading. All subscales loaded accordingly to the stress and recovery structure with an acceptable loading. Again, these findings are in line with the factor analysis conducted by Davis et al. (2007). The Davis et al. (2007) findings from their in-depth statistical analysis indicated that some subscales from the general factor (such as general wellbeing and social relaxation), are a predominant part of the stress recovery balance, as these subscales display the greatest variances within the questionnaire. Study Four finds similar findings as the general wellbeing subscale is showing an extremely strong loading in this statistical analysis. Defined by the World Health Organisation (World Health, 2004) as a key state of an individual that allows that individual to cope with the various life stressors, the wellbeing state has shown a negative relationship with stress among students (Neely et al., 2009). The same negative relationship has been shown with the findings of the fourth chapter of this thesis: over a key period (week 8, which is the assignment week), there is a notable decrease in the wellbeing subscale (Figure 3.5) along with a sharp increase

in the general stress subscales (Figure 4.6. Conflict/pressure, emotional stress, fatigue, physical complaints, lack of energy and general stress). A research study aimed at reducing burnout among student-athletes in a Canadian university (Dubuc-Charbonneau et al., 2015) had student-athletes actively taking part in a person centred self-regulation intervention over the course of an academic year. The results of this study indicated a relationship between a stress reduction and an increase in wellbeing. Within the Republic of Ireland, a study conducted in an third level institution among 185 student-athletes, reported that 31% of these student-athletes exhibited moderate to severe symptoms of depression and/or anxiety (Drew et al., 2018). As it is one of the first studies investigating the mental state and wellbeing Irish student-athletes', it clearly indicates the importance and the fragility of the student-athletes' wellbeing state. Another study investigating anxiety and mental health in Irish student-athletes was conducted over a 13-week season across 38 student-athletes competing in Gaelic sport. The findings indicated that 37% reported a level of mild to moderate symptoms of depression. The findings regarding the wellbeing subscale highlighted in Chapter 3 (Study Two) linked to the results from Dubuc-Charbonneau et al. (2015), Drew et al. (2018) and Sheehan et al. (2018) (who clearly advocates the importance of monitoring the state of student-athlete wellbeing), confirm the importance of the wellbeing subscale in monitoring student-athletes.

Another subscale regularly reaching a high significance in the statistical analysis of this present study is self-efficacy. The fourth chapter (Study 2) of this thesis

highlighted the decrease of this subscale at a key time (week 7) while the majority of the subscales measuring stress increased (from a general and sport specific aspect) over the same time span (Figure 4.5 and 4.7). Chapter five (Study 3) indicated a high factor loading of this subscale (Table 5.7) which is nearly identical to the factor loading of the statistical analysis performed in this current chapter (Table 6.7), indicating this subscale as a strong component in the student-athlete preparation and performance. Since the introduction of the concept of self-efficacy as an important factor in motivational education by Bandura (1977), a body of research indicated the importance of self-efficacy on academic performance (Lent et al., 1986; Multon et al., 1991; Schunk, 1991; Ferrari et al., 1992; Andrew, 1998; Chemers et al., 2001; Lane et al., 2001). As well, self-efficacy has been shown to have an undeniable impact on athletic performance: according to a meta-analysis (45 studies) looking at the relationship between self-efficacy and performance in sport (Moritz et al., 2000), self-efficacy is both a "cause and effect of performance" (Moritz et al., 2000, p. 289). Already highlighted as an important subscale within the Recovery stress questionnaire by Kellmann et al. (2001), the results from this current study emphasize its importance among the Irish student-athletes.

The stressors highlighted in the statistical analysis performed in this chapter mirror some of the findings by previous studies aimed at measuring student-athletes' stress (Lu et al., 2012; Chiu et al., 2016; Hwang et al., 2016; Martin, 2018). For example, a study conducted among 19 967 student-athletes (Hwang et al., 2016) highlighted that wellbeing, self-efficacy and social context (such as peers and

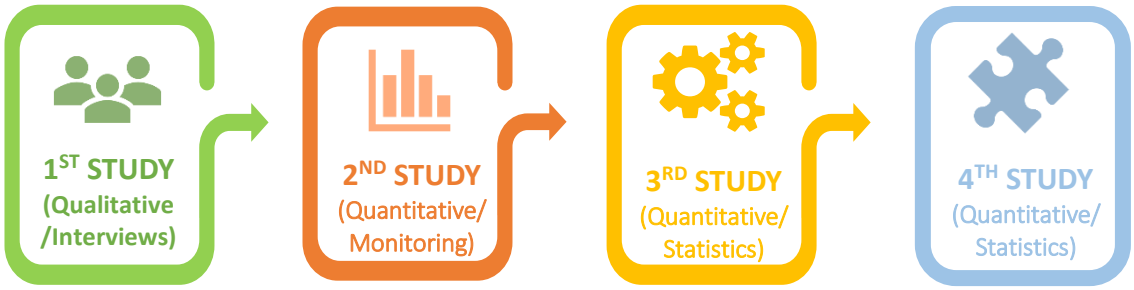
coaches' interactions) were associated with experiencing stress. These stressors are strongly identified in this statistical analysis and reinforce the usefulness of the subscales of this questionnaire aimed at the student-athlete in Ireland.

6.5 Conclusion

From this study (Study 4), it may be concluded that this shortened version of the recovery stress questionnaire developed in Chapter 5 is a valid tool for monitoring the student-athlete. The analysis shows the results display an acceptable level of internal consistency and factorial validity as the subscales loads on a two factor structure and clearly distinguish the stress scales from the recovery scales. As well, the subscales used in this questionnaire are indicating relevance and sensitivity to some of the major stressors affecting the student-athlete population. The few studies looking at the Irish student-athlete population in a Higher Education institution indicated findings that reinforce the usefulness of the subscales of this questionnaire.

CHAPTER 7

Conclusion of the Thesis



Research Question

What are the experiences of the student athlete in balancing athletic demands, academic demands and social environment in an Irish Higher Education system?

Research Question

What are the stressors affecting the student athlete over the course of an academic semester?

Research Question

Is it possible to offer a practical, reliable and suitable monitoring tool focusing on the stress and recovery states to the Irish student athlete?

Research Question

Validation of a practical, reliable and suitable monitoring tool focusing on the stress and recovery states to the Irish student athlete

The broad aim of this doctoral thesis was to investigate the struggles encountered by student-athletes in a Higher Education institution in the Republic of Ireland. The first section of this chapter addresses the study's findings via the research questions. The second part looks at the potential limitations and the future directions of this research.

7.1 Overview of Findings

1. What are the experiences of the student-athlete in balancing athletic demands, academic demands and the social environment in an Irish Higher Education system?

Chapter 3 approached this research question with a qualitative study looking into the life of nine student-athletes who were training and studying in a Higher Education institution in the Republic of Ireland. The aim of this study was to provide greater insight and understanding to the unique life of a student-athlete. An analysis of EU member states approach to support student-athletes characterises the Republic of Ireland as "laissez faire" (Aquilina, 2009). It, therefore, positions the student-athlete in Ireland at the opposite end of the support scale compared to their counterparts in a North American context. The findings of the first study in this current thesis highlighted the need for student-athletes to optimise their time

management skills in order to efficiently balance academic and athletic requirements. Quite often, a lack of adequate recovery resulted in cases of overtraining and in some instances, time away from academics. Findings regarding social interactions indicated that in contrast to other research (Parham, 1993; Watt et al., 2001) student-athletes in this study did not find themselves isolated socially from other students. A logical outcome of this first study was to investigate over the course of an academic semester, the various levels of stress affecting the student-athletes and how well they were able to recover.

2. What are the stressors affecting the student-athlete over the course of an academic semester?

The second study (chapter 4) builds on the previous chapter of this thesis which highlighted the student-athletes' exposure to various stressors. Very little academic research has been conducted regarding the stressors affecting the Irish student-athlete. The aims of this second study were twofold: to understand to what extent student-athletes were affected by the various stressors; and (in order to keep an optimum psychophysical state) to establish the quality of the associated recoveries. This study showed fluctuating stress and recovery levels through the semester, linked with key academic activities (assignment weeks and the weeks leading up to exams). The RESTQ-Sport questionnaire was able to accurately monitor stress-recovery states, but feedback suggested participants found the questionnaire too long to complete regularly. Also, some of the statistical results regarding the

internal validity of some of the subscales highlighted some inconsistencies, which warrant further investigation.

3. Is it possible to offer a practical, reliable and suitable monitoring tool focusing on the stress and recovery states to the Irish student-athlete?

The self-measure questionnaire used in the second study of this thesis demonstrated a usefulness for monitoring the stress-recovery state of the student-athlete. However, based on the student-athletes' feedback and the statistical analysis, the exploration of refining this self-measure questionnaire was necessary in order to increase its relevance and adapt it to the Irish student-athlete. The third study was dedicated to a statistical analysis performed across a sample of 174 student-athletes. The statistical analysis results indicated that various subscales did not fit the criteria and an improved fit was suggested. Due to various limitations of the statistical analysis used (the analysis used was identical to the one previously used in the original RESTQ-Sport questionnaire by Kellmann et al. (2001)), it was important to confirm the statistical relevance of these subscales by performing a new analysis with a different method and a new sample of student-athletes. The fourth study conducted a statistical analysis across a sample of 174 student-athletes as the previous study conducted in chapter 4 highlighted the importance of some of the RESTQ-Sport 52 questionnaire subscales and at the same time some inconsistencies regarding their internal validity. The statistical method used in the third study of this thesis (a Varimax rotation) was similar to the one used by

Kellmann et al. (2001), and some previous academic studies aimed at validating the recovery-stress questionnaire (Davis et al., 2007; Nederhof et al., 2008; Martinent et al., 2014) highlighted the limitations of the original statistical method. Instead, these researchers opted for a different statistical method (Maximum Likelihood), which was replicated for this confirmation study.

The findings of this fourth study confirmed the new model fit suggested after the completion of factor analysis in the third study. One of the subscales (social stress) displayed a low Cronbach alpha but an inter-item correlation calculation indicated an adequate level. Some research indicates that a low alpha could be due to a low level of items and in those cases, an inter-item correlation calculation is more suitable (Starkweather, 2012; Serbetar et al., 2016). This statistical analysis reinforced the importance of some subscales (i.e. well-being and self-efficacy) which again find relevance in the research conducted at both worldwide and national levels.

7.2 Original Contribution to Knowledge

Despite a large body of work devoted to the student-athlete profile, most of the research has been conducted across the North American student-athlete population. This research addresses a gap in the academic literature by providing not only an insight into the various challenges confronting the student-athlete in a

Higher Education institution within the Republic of Ireland but also by creating a practical, new questionnaire designed for the Irish student-athlete.

The longitudinal study in Chapter 4 (conducted over the course of an academic semester) highlighted the various stressors affecting the Irish student-athlete and as such, provided richness to the data obtained from the first qualitative study. In this context, this thesis makes an original contribution by extending the knowledge regarding the challenges affecting the student-athlete in an Irish university. Additionally this thesis offers, via various statistical methods, a self-measure monitoring questionnaire designed and developed specifically for the Irish student-athlete, and therefore makes a practical contribution to student-athlete wellbeing.

7.3 Limitations of the Study

There are various limitations to the studies undertaken in this thesis. All the research was conducted in the same Irish Higher Education institution (which limits the generalisation of the studies) and as pointed out by Aquilina (2009), the level of support offered within the Republic of Ireland is provided on an ad hoc basis and could vary greatly between universities. Therefore, the support provided in a different Higher Education institution within the Republic of Ireland may help the student-athlete to alleviate some of the struggles and stressors mentioned in this thesis. The research described in the various chapters of this thesis were cross-sectional and did not take into accounts the various points:

1. Classifications of student-athlete (sports competed in and standard of competitions)

2. Gender (men vs women)

3. Years spent at the university (undergraduate/postgraduate)

It would also be extremely beneficial to conduct longitudinal studies of various duration (either over academic semesters/year(s)) in order to improve the knowledge regarding the multiple stressors affecting the Irish student-athlete. The third chapter of this doctoral study is centred on the need to investigate the first research question (how is the student-athlete able to balance academics, sports and the social spheres). As nine student-athletes were interviewed in one university, a generalisation of these viewpoints is therefore limited and further qualitative research across other Higher Education institutions in the Republic of Ireland would be needed to provide a broader understanding of the Irish student-athlete profile.

The statistical analysis was conducted on the subscales and it would be useful to extend the scope of this statistical analysis to the items of the questionnaire in order to verify the efficacy and strength of these items. Furthermore, the shortened stress-recovery questionnaire would benefit from a series of longitudinal studies to verify 1) the subscales reliability via test-retest and 2) the efficacy of the questionnaire by genders.

7.4 Implications for Future Research

This study fills in a gap in the existing academic literature regarding the struggles encountered by the Irish student-athlete in a Higher Education institution. Overall, this study highlighted a number of issues regarding the Irish student-athlete. As the support structure for student-athletes in the Republic of Ireland is on an ad hoc basis (Aquilina, 2009), it would be beneficial to conduct similar studies regarding the viewpoints of these student-athletes and the type of stressors to which they are subjected over the course of longitudinal studies. The introduction and development of a short self-report measure, specifically aimed at the Irish student-athlete and with a primary focus on the stress and recovery states, is a beneficial tool to help the student-athlete to optimise their psychophysical state. As this self-measure tool is only in its infancy, it would greatly benefit from further study and adaptation to make it more relevant and applicable to teams, individual sports and genders. A comparison study between the subjective measures of this short questionnaire and biomarkers could reinforce the efficacy of this self-measure report.

This doctoral thesis investigates the various struggles encountered by the student-athletes in the Republic of Ireland Higher Education institutions, however, as with any of the challenges encountered, it is important to adopt a proactive approach rather than a reactive one. Student-athletes can only be supported if there is an

awareness and understanding of the challenges they are facing. They act as role models in society and can inspire younger generations to follow in their footsteps. Moreover, student-athlete sporting prowess brings pride and honour to their community and country, and pursuing an education while competing at the highest level brings undeniable challenges. In light of some of this doctoral thesis' findings and the Republic of Ireland's unique socio-economical context, there is a necessity to rethink and redefine the student-athlete support structure system. These student-athletes can potentially be the Irish flag bearers at future Olympic Games and as a nation, it is imperative to empower them to become not only great students but to achieve their potential as high-performance athletes.

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Appendix A. RESTQ-Sport 52 sample questionnaire

In the past (3) Days/nights

1) … I watched TV

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

2) … I laughed

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

3) … I was in a bad mood

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

4) … I felt physically relaxed

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

5) … I was in good spirits

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

6) … I had difficulties in concentrating

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

7) … I worried about unresolved problems

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

8) … I had a good time with my friends

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

9) … I had a headache

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

10) … I was dead tired after work

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

11) … I was successful in what I did

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

12) … I felt uncomfortable

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

13) … I was annoyed by others

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

14) … I felt down

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

15) … I had a satisfying sleep

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

16) … I was fed up with everything

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

17) … I was in a good mood

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

18) … I was overtired

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

19) … I slept restlessly

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

20) … I was annoyed

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

21) … I felt as if I could get everything done

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

22) … I was upset

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

23) … I put off making decisions

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

24) … I made important decisions

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

25) … I felt under pressure

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

26) … parts of my body were aching

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

27) … I could not get rest during the breaks

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

28) … I was convinced I could achieve my set goals during performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

29) … I recovered well physically

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

30) … I felt burned out by my sport

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

31) … I accomplished many worthwhile things in my sport

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

32) … I prepared myself mentally for performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

33) … my muscles felt stiff or tense during performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

34) … I had the impression there were too few breaks

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

35) … I was convinced that I could achieve my performance at any time

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

36) … I dealt very effectively with my teammates' problems

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

37) … I was in a good condition physically

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

38) … I pushed myself during performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

39) … I felt emotionally drained from performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

40) … I had muscle pain after performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

41) … I was convinced that I performed well

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

42) … too much was demanded of me during the breaks

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

43) … I psyched myself up before performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

44) … I felt that I wanted to quit my sport

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

45) … I felt very energetic

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

46) … I easily understood how my teammates felt about things

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

47) … I was convinced that I trained well

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

48) … the breaks were not at the right times

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

49) … I felt vulnerable to injuries

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

50) … I set definite goals for myself during performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

51) … my body felt strong

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

52) … I felt frustrated by my sport

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

53) … I dealt with emotional problems in my sport very calmly

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

Appendix B. New model stress and recovery monitoring questionnaire

In the past (3) Days/nights

1) … I watched TV

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

2) … I laughed

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

3) … I was in good spirits

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

4) … I was worried about unresolved pressure

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

5) … I had a good time with my friends

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

6) … I was dead tired after work

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

7) … I was annoyed by others

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

8) … I was in good mood

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

9) … I was overtired

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

10) … I was upset

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

11) … I felt under pressure

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

12) … parts of my body were aching

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

13) … I could not get rest during the breaks

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

14) … I was convinced I could achieve my set goals during performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

15) … I recovered well physically

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

16) … I felt burned out by my sport

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

17) … I accomplished many worthwhile things in my sport

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

18) … I prepared myself mentally for performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

19) … my muscles felt stiff or tense during performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

20) … I had the impression there were too few breaks

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

21) … I was convinced that I could achieve my performance at any time

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

22) … I dealt very effectively with my teammates problems

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

23) … I was in a good condition physically

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

24) … I pushed myself during performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

25) … I felt emotionally drained from performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

26) … I had muscle pain after performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

27) … I was convinced that I performed well

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

28) … Too much was demanded of me during the breaks

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

29) … I psyched myself up before performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

30) … I felt that I wanted to quit my sport

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

31) … I felt very energetic

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

32) … I easily understood how my teammates felt about things

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

33) … I was convinced that I had trained well

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

34) … The breaks were not at the right times

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

35) … I felt vulnerable to injury

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

36) … I set definite goals for myself during performance

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

37) … my body felt strong

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

38) … I felt frustrated by my sport

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

39) … I dealt with emotional problems in my sport very calmly

0	1	2	3	4	5	6
never	seldom	sometimes	often	more often	very often	always

Appendix C. Ethics

UCC Social Research Ethics Committee (SREC)

ETHICS APPROVAL FORM

Name of applicant	Jean Francois Gomez Date 01/04/14
Contact Details	Email j.gomez@ucc.ie
Department/Unit	Department of Education
Title of project	Interview study of the challenges of being a High Performance Student-athlete

		YES	NO
1	Do you consider that this project has significant ethical implications?		x
2	Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?	X	
3	Will participation be voluntary?	X	
4	Will you obtain informed consent in writing from participants?	X	
5	Will you tell participants that they may withdraw from the research at any time and for any reason, and (where relevant) omit questionnaire items to which they do not wish to respond?	X	

6	Will data be treated with full confidentiality / anonymity (as appropriate)?	X	
7	If results are published, will anonymity be maintained and participants not identified?	X	
8	Will you debrief participants at the end of their participation (i.e. give them a brief explanation of the study)?	X	
9	Will your project involve deliberately misleading participants in any way?		X
10	Will your participants include schoolchildren (under 18 years of age)?		X
11	Will your participants include people with learning or communication difficulties?		X
12	Will your participants include patients?		X
13	Will your participants include people in custody?		X
14	Will your participants include people engaged in illegal activities (e.g. drug taking; illegal Internet behaviour)?		X
15	Is there a realistic risk of participants experiencing either physical or psychological distress?		X
16	If yes to 15, has a proposed procedure, including the name of a contact person, been given? (see no 23)		

DESCRIPTION OF THE PROJECT

17. Aims of the project

To become a top athlete requires time, commitment and carefully planned training. Optimum adaptation to training requires the careful balancing of stress and recovery. A full time professional athlete has the ability and the time to solely focus on the achievement of this fragile equilibrium.
The high level student-athlete has to excel academically and compete to the highest level while being subjected to various stressors and time constraint
This study is looking at the way high level student-athletes balanced their training with academic demands.

18. Brief description and justification of methods and measures to be used (attach copy of questionnaire / interview protocol / discussion guide / etc.)

The study will be carried out by Jean Francois Gomez at the Mardyke Arena, UCC. Semi structured interviews will be conducted with University College Cork student-athletes. An audio recording will be used during those interviews and the grounded theory method from Strauss and Corbin will be used to collect and analyse the qualitative data. This method includes a specific process of open coding, axial and selective coding in order to allow the emergence of a theory.

19. Participants: recruitment methods, number, age, gender, exclusion/inclusion criteria

Forty adult male and female subjects will be recruited by advert at the Mardyke Arena Elite gym. There are no age restrictions but in order to be part of this study the participants have to:

- Compete at national and/or international level.
- Study in a third level institution preferably at the University College Cork

20. Concise statement of ethical issues raised by the project and how you intend to deal with them

There are no ethical issues anticipated with this project

21. Arrangements for informing participants about the nature of the study (cf. Question 3)

The study will be carried out by Jean Francois Gomez (School of Education, UCC). Subjects will be given written details of the study, verbally informed over the requirements and given to opportunity to ask any questions prior to giving signed informed consent.

22. How you will obtain Informed Consent - cf. Question 4 (attach relevant form[s])

Informed consent will be obtained from the subjects following a full verbal and written description of the study.

23. Outline of debriefing process (cf. Question 8). If you answered YES to Question 15, give details here. State what you will advise participants to do if they should experience problems (e.g. who to contact for help).

Subjects will receive a copy of the quotes intended to use in the study and these will be amended if required.

24. Estimated start date and duration of project.

Start date: 14th April 2012

Duration: 2 years

Signed _____ Date _____

Applicant

Notes

1. Please submit this form and any attachments to Dr. S. Hammond, Chair, SREC, c/o Miriam Collins, Office of the Vice President for Research and Innovation, Block E, 4th Floor, Food Science Building, University College Cork, College Road, Cork. Please also forward an electronic copy to srec@ucc.ie

2. Research proposals can receive only provisional approval from SREC in the absence of approval from any agency where you intend to recruit participants. If you have already secured the relevant consent, please enclose a copy with this form.

3. SREC is not primarily concerned with methodological issues but may comment on such issues in so far as they have ethical implications.

This form is adapted from pp. 13-14 of Guidelines for Minimum Standards of Ethical Approval in Psychological Research (British Psychological Society, July, 2004)

Department of Applied Psychology, UCC – Research Projects

SAMPLE INFORMED CONSENT FORM FOR RESEARCH PARTICIPANTS

Information Sheet

Purpose of the Study. As part of the requirements for Master of Philosophy (MPhil) at UCC, I have to carry out a research study. The study is looking at the challenges of a high performance athlete

What will the study involve? The study will involve a one on one semi structured interview. This is interview will not exceed a 45 mn duration.

Why have you been asked to take part? You have been asked because you are competing to national and/or national level in your chosen sport and are studying in a third level institution.

Do you have to take part? Participation is completely voluntary and you are free to withdraw at any point if you wish. The requirements of the study are outlined in this information sheet and you can ask any questions. If you would like to participate we ask you to sign the consent form.

Will your participation in the study be kept confidential? Yes. No clues to your identity appear in any reports or publications following this study. Any extracts from what you say that are quoted in the publications and thesis will be entirely anonymous.

What will happen to the information which you give? The data will be kept confidential for the duration of the study and stored on an encrypted hard drive. On completion of the thesis, they will be retained for a further six months and then destroyed.

What will happen to the results? The results from all the subjects will be collated and analysed. They will be seen by my supervisor, a second marker and the external examiner. The thesis may be read by future students on the course. The study may be published in a research journal.

What are the possible disadvantages of taking part? I don't envisage any negative consequences for you in taking part. It is possible that talking about your experience in this way may cause some distress.

What if there is a problem? If you have a problem at any point you should speak to one of the investigators who will advise as appropriate.

Who has reviewed this study? Approval must be given by the Social Research Ethics Committee before studies like this can take place.

.

Any further queries? If you need any further information, you can contact me: Jean-Francois Gomez (Email: J.gomez@ucc.ie)

If you agree to take part in the study, please sign the consent form overleaf.

Consent Form

I……agree to participate in Jean Francois Gomez's research study.

The purpose and nature of the study has been explained to me in writing.

I am participating voluntarily.

I give permission for my interview with Jean-Francois Gomez to be tape-recorded

I understand that I can withdraw from the study, without repercussions, at any time, whether before it starts or while I am participating.

I understand that I can withdraw permission to use the data within two weeks of the interview, in which case the material will be deleted.

I understand that anonymity will be ensured in the write-up by disguising my identity.

I understand that disguised extracts from my interview may be quoted in the thesis and any subsequent publications if I give permission below:

(Please tick one box:)

I agree to quotation/publication of extracts from my interview □

I do not agree to quotation/publication of extracts from my interview □

Signed……. Date…….

RS Ver 6 2/11/07

Appendix D. Ethics

UCC Social Research Ethics Committee (SREC)

ETHICS APPROVAL FORM

Name of applicant	Jean Francois Gomez Date 01/04/14
Contact Details	Email j.gomez@ucc.ie
Department/Unit	Department of Education
Title of project	Monitoring study of the levels of recovery in high performance student athletes over a semester.

		YES	NO
1	Do you consider that this project has significant ethical implications?		x
2	Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?	X	
3	Will participation be voluntary?	X	
4	Will you obtain informed consent in writing from participants?	X	

5	Will you tell participants that they may withdraw from the research at any time and for any reason, and (where relevant) omit questionnaire items to which they do not wish to respond?	X	
6	Will data be treated with full confidentiality / anonymity (as appropriate)?	X	
7	If results are published, will anonymity be maintained and participants not identified?	X	
8	Will you debrief participants at the end of their participation (i.e. give them a brief explanation of the study)?	X	
9	Will your project involve deliberately misleading participants in any way?		X
10	Will your participants include schoolchildren (under 18 years of age)?		X
11	Will your participants include people with learning or communication difficulties?		X
12	Will your participants include patients?		X
13	Will your participants include people in custody?		X
14	Will your participants include people engaged in illegal activities (e.g. drug taking; illegal Internet behaviour)?		X
15	Is there a realistic risk of participants experiencing either physical or psychological distress?		X

16	If yes to 15, has a proposed procedure, including the name of a contact person, been given? (see no 23)		

DESCRIPTION OF THE PROJECT

17. Aims of the project

To become a top athlete requires time, commitment and carefully planned training. Optimum adaptation to training requires the careful balancing of stress and recovery. A full time professional athlete has the ability and the time to solely focus on the achievement of this fragile equilibrium.
The high level student athlete has to excel academically and compete to the highest level while being subjected to various stressors and time constraint
This study is looking at the way high level student athletes balanced their training with academic demands.

18. Brief description and justification of methods and measures to be used (attach copy of questionnaire / interview protocol / discussion guide / etc.)

The study will be carried out by Jean Francois Gomez at the Mardyke Arena, UCC. Semi structured interviews will be conducted with University College Cork student athletes. An audio recording will be used during those interviews and the grounded theory method from Strauss and Corbin will be used to collect and analyse the qualitative data. This method includes a specific process of open coding, axial and selective coding in order to allow the emergence of a theory.

19. Participants: recruitment methods, number, age, gender, exclusion/inclusion criteria

Forty adult male and female subjects will be recruited by advert at the Mardyke Arena Elite gym. There are no age restrictions but in order to be part of this study the participants have to:

- Compete at national and/or international level.
- Study in a third level institution preferably at the University College Cork

20. Concise statement of ethical issues raised by the project and how you intend to deal with them

There are no ethical issues anticipated with this project

21. Arrangements for informing participants about the nature of the study (cf. Question 3)

The study will be carried out by Jean Francois Gomez (School of Education, UCC) and Dr John Bradley (School of Education, UCC). Subjects will be given written details of the study, verbally informed over the requirements and given to opportunity to ask any questions prior to giving signed informed consent.

22. How you will obtain Informed Consent - cf. Question 4 (attach relevant form[s])

Informed consent will be obtained from the subjects following a full verbal and written description of the study.

23. Outline of debriefing process (cf. Question 8). If you answered YES to Question 15, give details here. State what you will advise participants to do if they should experience problems (e.g. who to contact for help).

Subjects will receive a copy of the quotes intended to use in the study and these will be amended if required.

24. Estimated start date and duration of project.

Start date: 14th April 2012

Duration: 2 years

Signed _____ Date _____

Applicant

Notes

1. Please submit this form and any attachments to Dr. S. Hammond, Chair, SREC, c/o Miriam Collins, Office of the Vice President for Research and Innovation, Block E, 4th Floor, Food Science Building, University College Cork, College Road, Cork. Please also forward an electronic copy to srec@ucc.ie

2. Research proposals can receive only provisional approval from SREC in the absence of approval from any agency where you intend to recruit participants. If you have already secured the relevant consent, please enclose a copy with this form.

3. SREC is not primarily concerned with methodological issues but may comment on such issues in so far as they have ethical implications.

This form is adapted from pp. 13-14 of Guidelines for Minimum Standards of Ethical Approval in Psychological Research (British Psychological Society, July, 2004)

Last update: 2011-07-19

Consent Form

Investigator: Jean-francois Gomez (School of Education, UCC)

Purpose of the Study. As part of the requirements for Master of Philosophy (MPhil) at UCC, I have to carry out a research study. The study is looking at the impact of stress on recovery of a high performance athlete

What will the study involve? The study will involve you to answer a questionnaire (52 questions) once a week for 10 weeks and to take part in a short (less than 10 mn) at the end of the 10 weeks.

Why have you been asked to take part? You have been asked because you are competing to national and/or national level in your chosen sport and are studying in a third level institution.

Do you have to take part? Participation is completely voluntary and you are free to withdraw at any point if you wish. The requirements of the study are outlined in this information sheet and you can ask any questions. If you would like to participate we ask you to sign the consent form.

Will your participation in the study be kept confidential? Yes. No clues to your identity appear in any reports or publications following this study. Any extracts from what you say that are quoted in the publications and thesis will be entirely anonymous.

What will happen to the information which you give? The data will be kept confidential for the duration of the study and stored on an encrypted hard drive. On completion of the thesis, they will be retained for a further six months and then destroyed.

What will happen to the results? The results from all the subjects will be collated and analysed. They will be seen by my supervisor, a second marker and the external examiner. The thesis may be read by future students on the course. The study may be published in a research journal.

What are the possible disadvantages of taking part? I don't envisage any negative consequences for you in taking part. It is possible that talking about your experience in this way may cause some distress.

What if there is a problem? If you have a problem at any point you should speak to one of the investigators who will advise as appropriate.

Who has reviewed this study? Approval must be given by the Social Research Ethics Committee before studies like this can take place.

.

Any further queries? If you need any further information, you can contact me: Jean-Francois Gomez (Email: J.gomez@ucc.ie)

If you agree to take part in the study, please sign the consent form overleaf.

Consent Form

Monitoring study of the levels of recovery in high performance student athletes over a semester

Investigator: Jean-francois Gomez (School of Education, UCC), Dr. John Bradley (School of Education, UCC)

I……agree to participate in Jean Francois Gomez's research study.

The purpose and nature of the study has been explained to me in writing.

I am participating voluntarily.

I give permission for my interview with Jean-Francois Gomez to be tape-recorded

I understand that I can withdraw from the study, without repercussions, at any time, whether before it starts or while I am participating.

I understand that I can withdraw permission to use the data within two weeks of the interview, in which case the material will be deleted.

I understand that anonymity will be ensured in the write-up by disguising my identity.

I understand that disguised extracts from my interview may be quoted in the

thesis and any subsequent publications if I give permission below:

(Please tick one box:)

I agree to quotation/publication of extracts from my interview ☐

I do not agree to quotation/publication of extracts from my interview ☐

Signed……. Date…….

Appendix E. Ethics

APPLICANT DETAILS

Name of applicant(s)	Jean Francois Gomez	**Date**	03/11/2015
Department/School/Unit, & Supervisor's Name	Department of Education, Dr. John Bradley, Dr. Fiona Chambers	**Phone**	
Correspondence Address	Mardyke Arena UCC	**Email**	J.gomez@ucc.ie
Title of Project	Stress recovery balance and University College Cork student-athletes		

ETHICAL APPROVAL SELF-EVALUATION

		YES	NO
1	Do you consider that this project has significant ethical implications?		x
2	Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?	X	
3	Will participation be voluntary?	X	
4	Will you obtain informed consent in writing from participants?	x	
5	Will you tell participants that they may withdraw from the research at any time and for any reason, and (where relevant) omit questionnaire items to which they do not wish to respond?	x	

6	Will data be treated with full confidentiality / anonymity (as appropriate)?	x	
7	Will data be securely held for a minimum period of seven years after the completion of a research project, in line with the University's Code of Research Conduct?	x	
8	If results are published, will anonymity be maintained and participants not identified?	x	
9	Will you debrief participants at the end of their participation (i.e. give them a brief explanation of the study)?	x	
10	Will your project involve deliberately misleading participants in any way?		x
11	Will your participants include children (under 18 years of age)?		x
12	Will your participants include people with learning or communication difficulties?		x
13	Will your participants include patients?		x
14	Will your participants include people in custody?		x
15	Will your participants include people engaged in illegal activities (e.g. drug taking; illegal Internet behaviour)?		x
16	Is there a realistic risk of participants experiencing either physical or psychological distress?		x

17	If yes to 16, has a proposed procedure, including the name of a contact person, been given? (see no 25)		
18	If yes to 11, is your research informed by the UCC Child Protection Policy? http://www.ucc.ie/en/ocla/policy/		

DESCRIPTION OF THE PROJECT

19. Aims of the project (briefly)

The recovery stress state indicates the extent to which persons are physically and/or mentally stressed, whether or not they are capable of using individual strategies for recovery, as well as which strategies are used. Through the simultaneous assessment of stress and recovery, a differentiated picture of the current recovery-stress state can be provided. This study aims to explore the recovery stress states of elite student-athletes.

20. Brief description and justification of methods and measures to be used (attach research questions / copy of questionnaire / interview protocol / discussion guide / etc.)

The study will be carried out by Jean-Francois Gomez.

The recovery stress state will be assessed using the Recovery-Stress Questionnaire for Athletes (RESTQ-Sport) (Kellmann 2001). This questionnaire is based on 52 items consisting of 12 non-specific and 7 sport-specific scales. The RESTQ-Sport assesses potentially stressful and restful events and their subjective consequences during the past 3 days/nights.

The participants will be asked to answer this questionnaire on their own time via an online platform (Survey Monkey). Link to the questionnaire: https://www.surveymonkey.com/r/GYXQS95). Data collection is entirely anonymous (No names, IP address, locations … will be collected).

21. Participants: recruitment methods, number, age, gender, exclusion/inclusion criteria, detail permissions

400 adult male and female subjects will be recruited by contacting various UCC sport team managers then each team will be met individually.

The participants will have to be of a minimum of 18 years old in order to be part of this study the participants and:

- Currently competing at national and/or international level
- Currently studying at the University College Cork

22. Concise statement of ethical issues raised by the project and how you intend to deal with them

There are no ethical issues anticipated with this project

23. Arrangements for informing participants about the nature of the study (cf. Question 3)

The study will be carried out by Jean-Francois Gomez (School of Education, UCC). Each team will be met individually and informed about the aim of the study. Subjects will be given written details of the study, verbally informed over the requirements and given to opportunity to ask any questions.

24. How you will obtain Informed Consent - cf. Question 4 (attach relevant form[s])

Subjects are free to take part or not in the questionnaire and free to stop partaking in the questionnaire at any points. Once the questionnaire is submitted it is no longer possible to withdraw from the study. A note at the start of the questionnaire informs the participant that: "*If you answer and submit this questionnaire, you are giving your informed consent. This questionnaire is completely anonymous. You may withdraw from this questionnaire at any time."*

25. Outline of debriefing process (cf. Question 9). If you answered YES to Question 16, give details here. State what you will advise participants to do if they should experience problems (e.g. who to contact for help).

There is no anticipated physical and psychological distress from this study. Results will be displayed in the Mardyke Arena Elite Gym for interested athletes to see.

Jean Francois Gomez will also be available to discuss the results with any subject as required.

26. Estimated start date and duration of project

Start date: 15th November 2015

Duration: 52 weeks

Signed Jean Francois Gomez Date 05/11/15

Applicant

Signed Dr. John Bradley Date 05/11/15

Research Supervisor/Principal Investigator (if applicable)

Notes

1. Please submit this form and any attachments to srec@ucc.ie (including **a scanned signed copy**). No hard copies are required.

2. Research proposals can receive only provisional approval from SREC in the absence of approval from any agency where you intend to recruit participants. If you have already secured the relevant consent, please enclose a copy with this form.

3. SREC is not primarily concerned with methodological issues but may comment on such issues in so far as they have ethical implications.

This form is adapted from pp. 13-14 of Guidelines for Minimum Standards of Ethical Approval in Psychological Research (British Psychological Society, July, 2004)

Last update: September 2015

INFORMATION SHEET

University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

Purpose of the Study. As part of the requirements for Phd at UCC, I have to carry out a research study. The study is looking at the impact of stress on recovery of a University College Cork student-athlete.

What will the study involve? The study will involve you to answer a questionnaire (52 questions) once. The estimated duration to complete the questionnaire is 3 to 4 minutes

Why have you been asked to take part? You have been asked because you are competing to national and/or national level in your chosen sport and are studying in a third level institution.

Do you have to take part? Participation is completely voluntary and you are free to withdraw at any point if you wish**.** If you answer and submit the questionnaire you are giving your informed consent.

Will your participation in the study be kept confidential? Yes. No clues to your identity appear in any reports or publications following this study. Any data collection is strictly anonymous.

What will happen to the information which you give?

The data will be kept confidential for the duration of the study and stored on an encrypted hard drive. On completion of the thesis, they will be retained for a further seven years and then destroyed.

What will happen to the results? The results from all the subjects will be collated and analyzed. They will be seen by my supervisor, a second marker and the external examiner. The thesis may be read by future students on the course. The study may be published in a research journal.

What are the possible disadvantages of taking part? I don't envisage any negative consequences for you in taking part.

What if there is a problem? If you have a problem at any point you should speak to one of the investigators who will advise as appropriate.

Who has reviewed this study? Approval must be given by the Social Research Ethics Committee of UCC before studies like this can take place.

Any further queries? If you need any further information, you can contact me: Jeff Gomez (Email: J.gomez@ucc.ie)

If you agree to take part in the study, please sign the consent form overleaf.

CONSENT FORM

I……agree to participate in Jean-Francois Gomez's research study.

The purpose and nature of the study has been explained to me in writing.

I am participating voluntarily.

I understand that I can withdraw from the study, without repercussions, at any time, whether before it starts or while I am participating.

I understand that anonymity will be ensured in the write-up by disguising my identity.

Signed: ……. Date: ……..

PRINT NAME: …….