The Psychosocial Factors Associated with Athletic Retirement in Elite and Competitive Athletes

By:

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Abstract

Background: Career ending injuries are known to cause negative psychosocial and behavioural outcomes in retired athletes. However, there has been a limited amount of quantitative studies to complement mostly qualitative research. Furthermore, qualitative studies have typically assessed the effects of athletic identity, mental health/mood disturbances, loss, coping mechanisms and social support with minimal research regarding physical body transitions and body-esteem throughout the retirement process. Thus, the purpose of this thesis was to investigate the relationship between affective, behavioural, and cognitive outcomes and athletic retirement (voluntary, involuntary) among elite and competitive athletes. **Method:** A retrospective mixed method (questionnaire and interview) study was utilized to examine how participants interpreted their experience during the transitional process into retirement. Inclusion criteria consisted of male and female, elite and competitive athletes who have voluntarily or involuntarily (career ending injury) retired, ages 18 and above. Exclusion criteria included non-athletes/recreational athletes, athletes who were able to return to play or retired due to illness, health problems or deselection as well as who were less than 18 years of age. Posters were advertised in sports clubs, fitness centers, sports centers, physiotherapy offices and universities as well as on social media (Facebook and Instagram). The main outcome measures are as follows:1) Athletic Identity Measurement Scale (AIMS); 2) Mood and Feelings Questionnaire (MFQ), 3) Mental Health and 4) COPE Inventory. Semi-structured interviews were conducted with participants from both retirement (voluntary and involuntary) groups. All interviews (telephone, zoom) were recorded, transcribed verbatim and a thematic analysis was implemented to further determine the various themes and subthemes. An independent t-test explored the impacts of body dimensions and coping mechanisms on retirement type. Then a factorial ANOVA was conducted to examine the

effects of the dependent variables (mental health, mood disturbances and coping mechanisms) on the main analysis (retirement) and the exploratory (strength of athletic identity) analysis. **Results:** 50 (26 involuntary and 24 voluntary) questionnaires and eight (four voluntary and four involuntary) interviews were completed by the participants. Results from the quantitative data revealed a borderline main effect of retirement type on both mental health and mood disturbances. An exploratory analysis found retirees who weakly identified with the athletic role were less likely to experience severe mood disturbances and demonstrated higher levels of mental health than retirees who strongly identified with the athletic role. Information from qualitative data suggested participants who involuntarily retired and possessed a strong athletic identity experienced higher levels of mood disturbances (depression, frustrations, loss etc.), lower levels of mental health, identity loss, physical discomfort, negative effects of mind and body dualism as well as utilized maladaptive coping techniques than their counterpart who voluntarily retired or weakly identified with the athletic role. **Conclusion:** Both retirement types are subjected to various athletic and non-athletic demands and psychosocial effects of athletic retirement however, what sets them apart from experiencing a successful or unsuccessful transition into retirement is the intensity and severity of their emotional reaction to their retirement. Limitations of said study included a decrease in sample size, memory recall bias, the participant's own bias, limited diversity of the sample population as well as the inability to verify the findings from the interviews. The following study can be implemented to aid researchers, retired or soon to be retired athletes, coaches and athletic personnel to comprehend the diverse areas of athletic retirement. Future research should aim to investigate the impacts of mood disorders, the utilization of psychologist or mental performance consultant during the retirement process as well as the effects of body dimensions in retired athletes. Lastly, a longitudinal study

should be employed to examine the athlete's emotional response and reaction throughout retirement (time of injury, during physiotherapy, post- surgery and recovery).

Key words: (In)voluntary Retirement, (Non)Normative, Mental Health, Mood Disturbances, Athletic Identity, Coping Mechanisms, Social Support, Physical Activity, Physical Attributes, Body Dimensions and Financial Consequences

Table of Contents

CHAPTER ONE: INTRODUCTION

The athletic career often begins during childhood, where the young athlete learns teamwork and basic athletic skills in recreational sports. Then as time passes, the athlete slowly progresses into competitive or elite sport where they learn to improve their athletic skills, cardiovascular fitness, strength, focus, determination and resilience. Ryba et al. (2015) define the athletic career as a "developmental continuum, where the demands of training, competitions, traveling and resting periods" become increasingly more challenging and time consuming (p. 1048). The athlete's life is now regarded as a fulltime commitment to the sport. Everything that the athlete does revolves around training and competition with little regard for external factors that may distract them from achieving their goals. Then there comes a point in time where the athlete knowingly or unknowingly sets into motion the process of athletic retirement. Career transition is a "multifaceted process that occurs when an athlete discontinues athletic involvement of their current level of practice and competition" (Arvinen-Barrow et al., 2017, p. 67), which can occur in one of two ways: normative (voluntary) and non-normative (involuntary) retirement. Thus, one of the primary consequences of involuntary (forced) retirement specifically, career ending injuries in athletes is their emotional response to their injury, followed by the transitional demands of retirement and the psychosocial factors.

Normative transition is based on the perception of predictability and control that the athlete has over their retirement. Voluntary retirement allows retirees to plan accordingly to both "athletic (loss of status, strength of athletic identity, loss of control, socialization, interest and skills) factors" (Petitpas et al., 2012, p. 3) and non-athletic (academic, vocational, identity exploration, new social network) factors (Stambulova et al., 2009). As a result of pre-retirement

planning and a shorter duration of time spent during the transitional process, former athletes are more likely to experience a healthy transition into retirement (Cecić-Erpič et al., 2004).

In comparison, non-normative transition, such as a career ending injury or deselection from a team, is the result of an abrupt and unexpected end in one's athletic career; it is unpredictable, and the athlete lacks control over their decision to retire (Arvinen-Barrow et al., 2017; Wylleman et al., 2004; Muscat, 2004). Injury is expressed as "the cause of an external, traumatic and nonfatal event needing medical attention" (Vaan et al., 2018, p. 88) such as acute and chronic injuries. Acute injury is the "loss of bodily function or structure, immediate sensation of pain and discomfort and incapacitate an athlete" (ex: a torn ligament). Chronic injury "occurs over time with repeated stress to the body" such as tendonitis (Vaan et al., 2018, p. 90). Past research has determined involuntary retirement can cause various psychological vulnerabilities to former athletes namely, lower levels of self-control and self-respect, frequent feelings of anger, anxiety and depression (Cecić- Erpič et al., 2004; Arvinen-Barrow et al., 2017; Pitcho-Prelorentzos and Mahat-Shamir, 2019), identity confusion, disordered eating, decreased levels of self-confidence (Kerr and Dacyshyn, 2000), possible suicide attempt or suicide (Kerr and Dacyshyn, 2000; Smith and Milliner, 1994; Taylor and Ogilvie, 1994), substance abuse (Kerr and Dacyshyn, 2000; Taylor and Ogilvie, 1994), social withdrawal as well as fear (Taylor and Ogilvie, 1994). Thus, due to the unexpectedness of the athlete's injury, they are at a greater risk of negative affective behaviours (depression, sadness, grief, anxiety etc.), lower levels of mental health, utilization of maladaptive coping behaviours and feelings of loss (identity, social, status, financial).

Nonetheless, whether the injury is acute or chronic, both types of retirement are influenced by the athlete's situation, self, support and coping strategies (Carapinheira, et al.,

2018). Past literature has found strong evidence for the positive effects of normative (voluntary) retirement in former competitive and elite athletes such as shorter a transitional period, positive affective behaviours, less severe mood disturbances and a successful transition into retirement. For example, quantitative research conducted by Alfermann et al. (2004) reported, 256 amateur European athletes who voluntarily retired, endured fewer negative emotional reactions (sadness) in comparison to athletes who involuntarily retired. By contrast, involuntary retirement (also known as a crisis transition) occurs when the athlete is unable to adapt to the transitional demands (Stambulova et al., 2009). Research in the area has demonstrated that athletes who involuntarily retired are vulnerable to psychosocial difficulties such as an increase in negative affective behaviours (depression, sadness, anxiety), increase in hostility and anger, identity loss/confusion and are more likely to use maladaptive coping (denial, avoidance coping and substance abuse) mechanisms (Pitcho-Prelorentzos & Mahat-Shamir, 2019; Wolanin et al., 2015; Cecić-Erpič et al., 2004).

Athletes who retired voluntarily, have the advantage of being mentally prepared for the near future because they have actively planned for their retirement in both athletic and non-athletic (education, occupational career, family life) domains of their life whereas, their counterpart cannot and did not. Researchers identified as a consequence of involuntary retirement, athletes were subjected to psychosocial distresses of both athletic and non-athletic factors as well as athletic identity (Cecić-Erpič et al., 2014; Rohrs-Cordes & Paule-Koba, 2018). The difficulty of non-normative retirement consisted of a multiplicity of different factors, ranging from decreased mental health, greater possibility of being diagnosed with a mood disorder, challenges in adapting to retirement and the transitional demands as well as the varying degrees of positive and negative psychosocial effects.

Thus, the rationale for the present research study was to add to the body of literature that seeks to understand the psychosocial lived experience of sustaining a career ending injury and voluntary retirement during the athletic retirement process.

Despite the well documented effects of involuntary athletic retirement and difficulties in transition, there are presently gaps within our understanding of the phenomenon. Firstly, there is a limited amount of both quantitative and mixed method research on said topic. Secondly, there is scant amount research on whether or not competitive and elite athletes have been clinically diagnosed with a mood disorder specifically major depressive disorder. Previous research has shown, many athletes who sustained a career ending injury are highly susceptible to a variety of negative affective behaviours and more often times than none, athletes' express feelings of depression or depression-like symptoms. The importance of a clinical diagnosis can determine the intensity, frequency and severity of emotional reactions caused by athletic retirement and assess whether there is a difference in emotional reactions and coping techniques utilized between athletes who have voluntary and involuntary retirement. Thirdly, forced retirement can be highly damaging to the athlete's recovery process both mentally and physically due to the hinderance of the effectiveness in coping with their injury. Past research has reported athletes are at an increased risk of greater psychological difficulties (Crossman,1997; Kerr & Dacyshyn, 2000), more susceptible to suicidal ideation (Smith & Milliner, 1994) and use of maladaptive coping techniques (Taylor & Ogilvie, 1994; Smith & Milliner, 1994). Moreover, due to the limited amount of research on the following topics, the current study investigated, analyzed and assessed the effects of physical transformation, body composition and mind and body dualism on the athlete post-athletic retirement. The significance of this area of research allows researchers, mental performance consultants, sports trainers and retirees to understand the former athlete's

perceptions about themselves especially when they experience an overall decrease in their physical fitness, increase in body weight, change in body shape and decrease muscle mass. Secondly, how former athletes interpret their physicality post-retirement. Thirdly, how does mind and body dualism impact the athlete's psyche.

Therefore, the purpose of my study was to explore and comprehend the psychosocial, affective, behavioural, cognitive function, adjustments and coping methods used by former elite and competitive athletes who have voluntarily or involuntarily retired.

Variables

Independent Variables: Retirement type (main IV) and strength of athletic identity (exploratory IV).

Dependent Variables:

Primary DV: Mental health, mood disturbances, coping mechanisms, body-esteem/dimensions.

Secondary DV: Physical attributes, financial consequences and physical activity.

Research Questions/Hypotheses

Part One: Quantitative Questions

Main Analysis

1. Former athletes who sustained a career ending injury are more likely to experience a crisis transition (increase mood disturbances, decrease in mental health, use of maladaptive coping mechanisms) than athletes who voluntarily retired? Hypothesis: Involuntary retirement increases the likelihood of experiencing a crisis transition. As a result of involuntary retirement, athletes are often times ill equipped to cope with the transitional demands. Due to the unsuspecting athletic and non-athletic factors, the lack of control over their decision to

retire, lack of pre-retirement planning (career options/opportunities, academic enrollment and identity exploration), unfavourable thoughts and feelings about oneself amplifies the retiree's likelihood of experiencing an unsuccessful transition.

2. Were there differences in coping (adaptive, maladaptive) mechanisms utilized during the athletic career termination process between voluntary and involuntary retirement? Hypothesis: Former athletes who involuntarily retired are more likely to use maladaptive coping behaviours than athletes who voluntarily retired. Due to the unexpectedness of their injury, past research has found athletes were at a higher risk of using maladaptive coping techniques (substance abuse, gambling, alcohol abuse and denial).
3. Was there a change in body-esteem (body shape, weight, appearance and muscularity) levels post-athletic career? Hypothesis: During athletic retirement, the former athlete's body perception (muscle mass/tone, fitness levels, body weight and shape) are subjected to change from a positive to negative perception based on the possibility that their physical activity levels have decreased. For example, as a result of being inactive, the former athlete may notice a change in their physicality which can significantly impact their perception about themselves.

Quantitative Exploratory Analysis:

4. Former athletes who strongly identified with the athletic role and suffered a career ending injury are more likely to experience a crisis transition than their counterpart? Hypothesis: Athletes who strongly identified with the athletic role are at a greater risk of possessing a unidimensional identity as well as experience identity foreclosure. A consequence of a unidimensional identity and identity foreclosure is that it limits the exploration the different avenues of life such as social, personal, vocational and academic. Thus, when the athlete

suffers from a career ending injury, they have limited outside resources, less likely to possess friends outside of the athletic sphere, experience identity loss/confusion, increase in mood disturbances, decrease in mental health and use maladaptive forms of coping.

Part Two: Qualitative Questions

5. To examine the lived experiences of retirees (voluntary and involuntary) who strongly or weakly identified with the athletic role and the impact it had on their mental state, emotional response and coping mechanisms used during retirement.
6. To investigate the personal experience of both voluntary and involuntary retirement and their psychological reaction to losing their athletic identity.
7. To understand the experience of mind and body dualism on injured athletes' psyche during retirement.

Limitations

One of the primary limitations of the study was the retrospective self-report data from the participants. For example, depending on the length of time since the athlete retired, they may ineffectively recall their transition. The athlete may remember the process in one of three ways: 1) more damaging than it actually was, 2) not as damaging as they thought or 3) they accurately recall the transitional process. Furthermore, attempts were made to broaden the sample however, as a result of the pandemic (COVID-19) and social constraints, it made it difficult to recruit the initial sample size of 102 which was needed to explore the interaction between retirement and identity.

Delimitations

Participants were primarily from British Columbia with an outreach of participants within the rest of Canada. I am also delimiting to a certain type of athlete that of which how have retired through career ending injury and voluntarily.

Assumption

A primary assumption within my thesis, was regarding participants memory to accurately recollect their experience depending on the amount of time that has passed since retirement. I am also relying on participants to be truthful about their experience throughout retirement. In the sports context, athletes are taught to be mentally tough; therefore, when I ask questions regarding their emotional state at the time of injury or challenges, they may have endured, I am assuming they are not reducing the severity of the circumstances they underwent.

Background Disclaimer

It is worth mentioning as a background declaimer of myself, I used to be a competitive athlete who competed in Taekwondo (second degree black belt), a competitive basketball (Rep A) and soccer (AAA) player. I partially tore my ACL during a basketball game when I was 16 and despite not being fully recovered, I continued to practice in Taekwondo and basketball which ultimately increased the damage to my knee. During my last competitive basketball game that I would ever play at 17, I tore my ACL completely, MCL, meniscus and shattered all the cartilage in my right knee which required me to have surgery that following year. I did not realize at the time that, that was only just the beginning of an uphill battle I would have to face on my own. I experienced a variety of mood disturbances namely, depressive-like symptoms, I was frustrated and angry that I could no longer practice or compete, I was annoyed at my limited capability and being unable to help my teammates win games. I saw a decrease in my mental health and happiness to the point where my friends and teammates became worried about me. I experienced an increase in physical restrictions and mobility that I had to rely on family and friends to help me go the bathroom, take a shower or carry my books during school hours. I used maladaptive coping behaviours throughout my recovery process, I was in denial about the severity of my injury, I was unwilling to accept that my sport career was over and often times I would reminisce and dream about being the athlete I was before I was injured, I would day dream of the times I received MVP during basketball games and tournaments or 1st place in sparring in Taekwondo. I stayed in the past far too long to realize I was not living in the present moment anymore since that was a nightmare all on its own. In regard to social support, I had limited to none, I did not know who to talk to and if I attempted to talk to someone, I thought their advice was less than helpful. I experienced negative perceptions about my body image

which caused an increase in negative affective behaviour. I distanced myself physically and emotionally from my teammates and coaches as I went from being a starter to a bench player and the animosity grew slowly as I saw another teammate take my place on the court. My self-worth and competence as a starter decreased as my skill level would never been the same after the injury. I lost my identity, I was no longer Riana the athlete, I was just Riana, whoever that was. I lost my physical fitness, my athleticism, sport competence, I lost friendships I had with my teammates because I could not stand to be on the sidelines watching everyone accomplish things I wanted to, I lost myself mentally and physically to the point to took me years to rediscover who I was other than an athlete. I was forced to create new identities, friendships, goals, aspirations and find new physical activities that I could enjoy without putting my knee at risk. Thus, due to my own personal experience, it led to my interest in how other athletes in the same predicament understand and interpret their athletic retirement.

Definition of Terms

1. Acute injury- the "loss of bodily function or structure, immediate sensation of pain and discomfort and incapacitate an athlete" such as a torn ligament in the knee (Vaan et al., 2018, p. 90).
2. Athletic identity- the "degree to which an individual identifies with the athletic role" (Stephan & Brewer, 2007, p. 67).
3. Athletic transition – "voluntariness and gradualness of sports career termination, subjective evaluation of athletic achievements, post-sports life planning, and athletic identity" (Cecić- Erpič et al., 2004, p. 45).

4. Career transition- “is a multifaceted process that occurs when an athlete discontinues athletic involvement of their current level of practice and competition” (Arvinen-Barrow et al., 2017, p. 67).
5. Chronic injury- “occurs over time with repeated stress to the body” (Vaan et al., 2018, p. 90).
6. Coping- “constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that re-appraised as taxing or exceeding the resources of the person” (Grove et al., 1997, p. 192).
7. Functional limitations- “inability to complete performance movements as a result of their injury such as sports related skills or daily activities” (Russell et al., 2018, p. 309).
8. Identity- is a “multidimensional construct that is made up of an individual’s self-image and self-schema that is both enduring and dynamic” (Lally, 2007, p. 86).
9. Identity foreclosure- is defined as a “commitment to an identity before one has meaningfully explored other options or engaged in exploratory behaviour, such as career exploration, talent development, or joining social clubs or interest group” (Beamon, 2012, p. 196).
10. Injury- “the cause of an external, traumatic and nonfatal event needing medical attention” (Vaan et al., 2018, p. 88).
11. Involuntary retirement- is “categorized as a non-normative event because it is an unexpected event” (Kaul, 2017, p. 315).
12. Major Depressive Disorder- “requires five or more symptoms to be present within a 2-week period ex: a depressed mood or anhedonia (loss of interest or pleasure- LI), appetite or weight changes, sleep difficulties (insomnia or hypersomnia), psychomotor agitation

or retardation, fatigue or loss of energy, diminished ability to think or concentrate, feelings of worthlessness or excessive guilt, and suicidality" (Tolentino & Schmidt, 2018, p.2)

13. Mental health- is a "state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" (World Health Organization, 2014).
14. Mood disorders- are "emotional disturbances consisting of prolonged periods of excessive sadness, excessive joyous or both" (Coryell, 2018).
15. Non-athletic transition- "includes the events that occur in the athlete's psychosocial life and are in essence not related to sports, e.g. the educational/academic or occupational career, social network development" (Cecić-Erpič et al., 2004, p. 48).
16. Non-normative transition- "are commonly unpredicted, unanticipated, and involuntary" (Knights et al., 2016, p. 293).
17. Normative transition- "which are part of a definite sequence of sports- and age-related events, e.g. transition from junior to senior level, from regional to national-level competitions, from amateur to professional status, from active participation to discontinuation from competitive sport" (Wylleman et al., 2004, p. 16).
18. Private identity - the "extent to which the individual's identity as an athlete has been internalized as part of his/her private self-concept" (Webb et al., 1998, p. 68).
19. Physical impairment- "any physical symptoms at the site of injury such as pain, decrease in range of motion, functionality and instability" (Russell et al., 2018, p. 309).

20. Public/social identity- the "extent to which the individual is known and recognize by others as an athlete, for instance, they are psychologically fortified by the public acclaim, and this public reputation becomes a part of the athlete's overall identity" (Webb et al.,1998, p. 68).
21. Voluntary retirement- "the degree of control athletes have over their decision to retire" (Park et al., 2013, p. 34).

CHAPTER TWO: REVIEW OF LITERATURE

The following chapter overviews the various sections namely, theoretical framework/transitional models (the Conceptual Model of Adaptation to Career Transition and Thanatology: Stages of Death) and themes, identity (strength of athletic identity, social identity, effects of career ending injury and identity), mental health (life satisfaction), mood disturbances, loss (feelings of loss and financial loss), physical attributes (body dimensions, mind and body dualism), physical limitations, coping mechanisms (adaptive forms of coping, planning for the future, positive thinking and rehabilitation, professional help, maladaptive coping and suicide), social support (effective and ineffective social support), lastly, positive effects of sustaining a career ending injury.

Theoretical Framework/ Transitional Models

Athletic career termination is a multidimensional step process where the athlete has to consciously make the effort to change and overcome specific transitional demands that will allow the athlete to either successfully or unsuccessfully transition into retirement. Transition is characterized as an "event or non-event which results in a change in assumptions about oneself and the world and thus, requires a corresponding change in one's behaviour and relationship" (Cecić-Erpič et al., 2004, p. 46; Gordan & Lavallee, 2012). Researchers have determined three

significant factors that occur during the transitional process into retirement: 1) the characteristics of the individual experiencing the transition; 2) the perception of the particular transition and 3) the characteristics of the pre and post-transition environment. Such characteristics include however, are not limited to, psychological competence, sex, age, state of health, race/ ethnicity, socio-economic status, exploration of social roles, affective and behavioural affects and stress (degree and intensity) levels (Schlossberg, 1997) as reported by Taylor and Ogilvie (1994).

There are two career transitional models that are predominantly used throughout the literature to explain the psychosocial effects of athletic retirement in elite and competitive athletes: The Conceptual Model of Adaptation to Career Transition (Taylor & Ogilvie, 1994) and Stages of Death (Kübler-Ross, 1969; Lerch, 1982; Rosenberg, 1982).

The Conceptual Model of Adaptation to Career Transition

The Conceptual Model of Adaptation to Career Transition (Taylor & Ogilvie, 1994) describes the "athletic career termination as a transitional process between the athletic career and post-sports life which includes the cause, the factors that may affect the adaption to a new life and the available resources leading to the outcomes or consequences of athletic termination" (Kaul, 2017, p. 317) as well as exploration of both positive and negative psychosocial effects. Furthermore, it assesses the 1) Causes of retirement (age, deselection, injury or free choice); 2) Related Factors to the adaptation process: developmental experiences, social identity, tertiary contributes, self-identity and perception of control; 3) Available resources: pre-retirement planning, social support and coping skills; 4) Quality of adaptation to athletic retirement (healthy or crisis transition) and 5) Intervention and treatment for athletic retirement difficulties (how the former athlete adapts to the new perceptions about themselves and their new role that will maximize their functionality) (Kaul, 2017, p. 316; Taylor & Ogilvie, 1994; Wylleman et al.,

2014). However, the model is also incomplete because it failed to acknowledge the emotional and cognitive aspects of the adaptation into retirement which further inhibits the understanding of how athletes utilizes their social support system and coping techniques.

Following Taylor and Ogilvie (1994) model, Coakley. (2006) studied seven former National Football League (NFL) players who retired for various reasons, namely, aging out of the league, diminished athletic skills, their decision to retire, voluntarily, career ending injury or were released from the team. Participants discussed related factors of their retirement in terms of their athletic identity, public identity and the psychological toll it had on their mental health. Retirees mentioned as a result of possessing a unidimensional identity and losing their athletic identity, they experienced an increase in mood disturbances. The former athletes also discussed the difficulties in transitioning beyond the athletic identity and into a more individualistic persona. In regard to the transition itself, retirees discussed feelings of discomfort and distressed as they shift from the known (athletic career/lifestyle) and into the unknown (life post-athletic career). The third stage, available resources consisted of both adaptive and maladaptive forms of coping mechanisms. Maladaptive forms of coping included overspending, negative affective behaviours and substance abuse. Adaptive coping techniques included financial security, earning a bachelor's degree as well as support and guidance from their social group (significant others, family members, agents, therapists and friends). In addition, participants also discussed the benefits of financial security which was a prominent factor in the quality of their adaptation. The fourth stage of retirement (quality of adaptation) demonstrated both healthy and crisis transition. Retired athletes addressed experiencing numerous negative emotional reactions such as mood disturbances (depression, irritability, short tempered) as well as feelings of loss (identity, friendships, privilege, high level income, competition and elite group membership). Furthermore,

challenges also arose when the individuals were unable to discover an activity or career that could replace football and be just as fulfilling. Coakley. (2006) reported former athletes who experienced a crisis transition early on in the retirement process were more likely to remain in the transitional process for a longer of period of time as well as found it difficult to withdraw from their athletic career. Lastly, stage five, interventions and treatment for athletic retirement difficulties, participants who went to counselling stated they were able to work on their marriage, cope with the termination of their athletic retirement and gained a better understanding about their negative affective behaviours.

Stages of Death

To examine the psychological effects of career ending injuries, past research has used thanatology, the study of death, dying and grieving (Agnew & Drummond, 2015). Kübler-Ross. (1969) first introduced the stages of grief used by terminally ill patients when confronted with death. The stages of death consists of five stages: 1) Denial and Isolation: the athlete denies the reality and severity of the injury and may make statements as " no, it's not true"; Stage 2) Anger: the athlete becomes agitated with themselves and others (family and friends) and with the overall situation (Wylleman et al., 2004, p. 9), the athlete may make statements as "why me? Why now"? (Fortunato & Marchant, 1999); Stage 3) Bargaining: "athletes' tend to remain in the past and may bargain" (Kaul, 2017, p. 316), they may attempt to negotiate for a lengthened sports career (Wylleman et al., 2004; Marthinus, 2007) and make statements as "I'll do anything to stay in the game" (Fortunato & Marchant, 1999); Stage 4) Depression: the athlete comes back to the present and struggles to come to terms with the extent of their injury and uncertainty about their future (Kaul, 2017, p. 316), they may experience a distressful reaction to retirement (Wylleman et al., 2004; Marthinus, 2007) and make statements as "I can't bear the thought of not playing"

(Fortunato & Marchant, 1999) lastly, Stage 5) Acceptance: the athlete "accepts the reality that his/her career has ended and gradually makes the transition out of sport" (Kaul, 2017, p. 316; Wylleman et al., 2004) and make statements as "it happened, my competitive sport career is over, what now?" (Fortunato & Marchant, 1999, p. 271).

Nassi. (2014) found comparable findigns between Kübler-Ross. (1969) stages of death and the emotional reactions of three former professional athletes who sustained career ending injuries (acute musculoskeletal injuries). Nassi. (2014) reported a lack of findings in terms of denial and bargaining from the participants. However, the former athletes did discuss feelings of anger and depression in regard to the lack of progression at physiotherapy, the realization of the severity of their injury, frustrations as a consequence of prolonged recovery time, boredom and disgust due to changes in both their personal and professional lives. Lastly, during the final stage (acceptance), participants were able to come to terms with the retirement process and reported feelings of relief, freedom, personal growth and contentment with their situations and satisfaction.

The Psychosocial Effects of Athletic Retirement

Identity: Athletic Identity

Identity is a multidimensional construct that is made up of an individual's self-image and self-schema that is both enduring and dynamic (Lally, 2007). To the same extent, athletic identity is the "degree to which an individual identifies with the athletic role" (Stephan & Brewer, 2007, p. 67; Rohrs-Cordes & Paule-Koba, 2018; Sanders & Stevinson, 2017; Stambulova et al., 2009; Giannone et al., 2017; Smith & McManus, 2008) which is based upon the athlete's self-concept, perceived values, social network (Sanders & Stevinson, 2017) and cognitive aspects (Rohrs-Cordes & Paule-Koba, 2018).

Parents typically register their children into sports as a way of enhancing the child's physical fitness levels, activity levels, ability to work within a team, experience the ups and downs of competition as well as, develop social, physical and personal goals. However, as the athlete's talent starts to advance and becomes a focal point in their lives, the parents will sign them up to compete in a higher league that will improve their competition, strengthen their skill levels, enhance their athletic talents and ability with little room for external distractions. By doing so, they are unknowingly creating a unidimensional identity within the individual also known as identity foreclosure (Webb et al., 1998). Identity foreclosure is an overcommitment to a singular identity "before one has meaningfully explored other options or engaged in exploratory behaviour such as career exploration, talent development, joining social clubs or interest groups" (Beamon, 2012, p. 196). It is worth noting, the benefits of exploratory behaviour, it provides the athlete with "self-knowledge to make the commitments to a personal identity, exposes them to situations that increase their abilities to cope effectively with life transitions as well as other stressors" (Petitpas et al., 2012, p.7), however, as a result of identity foreclosure, they are unable to do so. Athletic identity encompasses various aspects of one's self-perception (self-respect, self-esteem, self-confidence), public identity (status within the community) and the amount of time spent in the sports environment which reinforces the strength and exclusiveness of their athletic identity. However, a strong athletic identity has both advantages and disadvantages on the athlete. Brewer et al. (1993), regarded the athletic identity as the Hercules' muscle because it allowed the athlete to fully immerse themselves both psychologically and physiologically into their desired sport. The athletic identity can perpetuate the overall commitment and adherence to stay actively involved in sports for a longer period of time as well as strengthen their athletic performance (Sparkes, 1998), increase their commitment

to intensive athletic training (Rohrs-Cordes & Paule-Koba, 2018), motivation, sports goals, enhance positive affective behaviour, mental health (wellbeing, life satisfaction and decrease in anxiety levels), improve body image perceptions, self-confidence (Stephan & Brewer, 2007) and self-esteem (Rohrs-Cordes & Paule-Koba, 2018). Carapinheira et al. (2018) conducted a study with 90 former elite Portuguese male football players who sustained a career ending injury and strongly identified with the athletic role. Findings demonstrated retirees experienced fewer transitional challenges as well as tended to stay actively involved with the team post-athletic career.

However, the strength of an athletic identity can also be highly damaging to the individual because after the athlete sustains a career ending injury, their athletic identity now acts as an Achilles' heel (Sparkes, 1998). The sudden and unexpectedness of their athletic career termination renders the athlete helpless because they are unable to adjust to the psychological, physiological, athletic and non-athletic transitional demands. As a consequence, due to the overemphasis of a strong athletic identity, athletes are unable to create or develop a multidimensional identity outside of sports (Martin et al., 2014). In addition, they are faced with both personal stresses such as identity loss and/or identity foreclosure (Park et al., 2013; McKnight et al., 2009) and social stresses, for instance, loss of social self, social network and connections (Arvinen-Barrow et al., 2017). Furthermore, athletes are also prone to physical limitations, environmental changes and non-athletic factors (Sparkes, 1998; Rohrs-Cordes & Paule-Koba, 2018; Webb et al., 1998; Taylor & Ogilvie, 1994). In addition, retirees who have suffered from a career ending injury are also highly susceptible to heightened levels of stress and anxiety about their future (Wolanin et al., 2015) and feelings of loss such as loss of connectedness to their teammates, coaches, other athletes and their athletic lifestyle (Arvinen-

Barrow et al., 2017). Athletes have often times reported more intense and frequent psychological and emotional difficulties post-injury (Cecić-Erpič et al., 2004; Wolanin et al., 2015) such as depressive-like symptoms, sadness, decrease in self-perceptions, self-esteem (Arvinen-Barrow et al., 2017), post-career emotional distress (Martin et al., 2014), loneliness (Sanders & Stevinson, 2017), social isolation (Rohrs-Cordes & Paule-Koba, 2018), lack of utilization of positive coping strategies (Knights et al., 2016; Muscat, 2004), adjustment difficulties (Brewer et al., 2010), continuing sports participation despite being injured and over-adhering to physiotherapy/rehabilitation (Brewer & Petitpas, 2017). Athletes are also more likely to experience a delay in career maturity (Martin et al., 2014), less likely to plan for future vocations prior to retirement (Grove et al., 1997), experience indecisiveness when faced with options as a result of their parents and coaches creating their routine and telling them what to do, when to do it and how do it. They may also have a lack of knowledge in regard to new occupational opportunities or career skills (Martin et al., 2014), difficulty in establishing an occupational identity post-athletic career as well as are at an increased risk of experiencing negative emotional and social adjustments (Marthinus, 2007; Albion, 2007). Cecić-Erpič et al. (2004) reported 15 out of 85 Slovene athletes who sustained a career ending injury expressed an increase in severity and frequency of emotional distresses, feelings of incompetence in activities unrelated to sports and sports, lack of self-confidence, decrease in self-respect and self-esteem and were less likely to prepare for life post-athletic career. Sanders and Stevinson. (2017) studied 307 retired professional football players of which, 130 sustained a career ending injury. Athletes who were forced into retirement and who strongly identified with the athletic role were more likely to experience depressive-like symptoms and negative psychological behaviours. Interestingly, Cecić- Erpič (2001), detailed that participants who strongly identified with the athletic role

encountered greater psychological difficulties during retirement, doubts about retirement and an increase in negative self-perceptions about their self-concept, lack of self-esteem, lack of self-control and lack of respect (Russell, 2000) than athletes with a weaker (multidimensional identity) athletic identity. Brewer. (1993) tested the hypothesis that by experiencing an athletic injury it would cause a disruption in one's life event during the pursuit of self-defining activities that would be associated with depressed moods. Brewer. (1993) was able to conclude that athletes with a strong and exclusive athletic identity were more susceptible to depressed moods in his hypothetical and actual athletic injury study.

Similarly, Leddy et al. (1994) found comparable results in high level competitors, where former athletes exhibited more significant psychological consequences (depression, anxiety, decrease in self-esteem) immediately following their injury and two months at follow-up. Thus, depending on the strength of the athlete's identity and the success of their retirement, can impact the type of retirement (healthy or crisis) they will experience.

Self-perceptions and Social Identity

An athlete's identity is a not a singular construct, it is made up of the athlete's self-identity (private identity), social/public identity and the self-perceptions that define them as an athlete. Private identity refers "to the extent to which the individual's identity as an athlete has been internalize as part of his/her private self-concept" (Stephan & Brewer, 2007; p. 68). Self-concept pertains to "who or what one is, to the various meanings attached to oneself by self and others" (Beamon, 2012, p. 196). For instance, the athletic identity is a multidimensional hierarchal construct or domain specific (Loberg, 2008) that is made up of the athlete's self-identity (how one views oneself) and social identity (how the self is viewed by others). Russell. (2000), described three basic factors of how athletes gain a sense of self-worth: 1) "The need to

feel competent by developing and accomplishing daily goals such as an increase in strength, speed and skills;" 2) "The need to experience achievement" and 3) "The need to feel accepted" (p. 42). As the athlete's coach(es) and peers begin to notice the positive changes in the athlete's athletic abilities, it ultimately enhances their sense of self-worth, increases their competencies, competitive success and elevate their athletic performances (Russell, 2000). As a result of positive reinforcement, athletes are rewarded by the coach by becoming a start or maintaining their starting position, winning games, increase their popularity within the athletic community and enhance their status within the public which reinforces the admiration of others (Russell, 2000).

Social identity refers to "the extent to which the individual is known and recognized by others as an athlete" (Webb et al.,1998, p. 68). Due to the broadcasting of the athletic performance to a wider public audience where their success and failures during a game are visible, the athlete's public reputation (positive or negative) is intertwined with their social status, their athletic capabilities and the strength of their athletic identity. Stoltenburg et al. (2012) examined seven Division 1 and 2 athletes who terminated their athletic career due to sustaining a career ending injury. Two participants discussed that despite their strong and exclusive athletic identity, they were able to create and maintain other social identities because their family members encouraged social exploration (roles and interests) outside of the athletic sphere whereas, others social network consisted of other athletes and limited social identity exploration.

Effects of Sustaining a Career Ending Injury and Identity

Crossman. (1997) indicated that identity loss can significantly impact the athlete's self-esteem because of the discrepancy between how the athlete perceives themselves to be (a non-

contributing member of the team) and what the athlete would like to be doing (performing to optimum level as an athlete). Due to the discrepancy, the athlete is at an increased risk of adjustment difficulty (Knights et al., 2016), prolong time spent during the transitional phase (Cosh et al., 2013), loss of status and social identity (Taylor & Ogilvie, 1994; Fortunato & Marchant, 1999), identity loss (Muscat, 2004; Lake, 2016); emotional adjustment issues, restriction in ability to make decisions for oneself (Muscat, 2004); use of maladaptive coping mechanisms (Muscat, 2004; Cecić-Erpič et al., 2004; Knights et al., 2006), emotional turmoil: depression, dissatisfaction and loneliness (Alfermann et al., 2004; Lally, 2007; Sanders & Stevinson, 2017). Rohrs-Cordes & Paule-Koba. (2018) surveyed 12 former NCAA Division 1 college athletes who sustained a career ending injury and strongly identified with the athletic role. Results demonstrated those athletes reported experiencing identity loss as well as difficulty in developing an alternative identity or identities.

Weak (multidimensional) Athletic Identity

Athletes with a weak athletic identity were more likely to endure an easier transition into retirement because their alternative identities allowed them to explore and take part in other areas of life (career options/opportunities or scholastic goals/academic enrollment) which ultimately enabled them to spend less time in the retirement phase (Stoltenberg et al., 2012; Grove et al., 1997; Rohrs-Cordes & Paule-Koba., 2018).

Mental Health and Mood Disturbances

Mood Disturbances

Athletes are prone to various psychological vulnerabilities after sustaining a career ending injury such as decrease in mental health, life satisfaction/wellbeing (Kleiber et al., 1987; Kleiber et al., 1992), increase in mood disturbances such as anger, anxiety, depression etc.,

(Cecić -Erpič et al., 2004; Crossman, 1997; Leddy et al., 1994; Wolanin et al., 2015), decrease in self-perceptions (Lally, 2007), susceptible to eating disorders and/or substance abuse (Kerr and Dacyshyn, 2000) or suicide (Wolanin et al., 2015; Smith and Milliner, 1994). To date, there has been limited research on the relationship between career ending injuries and clinically diagnosed mood disorders in athletes. Therefore, this section will explain former athletes' relationship with mood disturbances (depressive symptoms, sadness, grief, frustration etc.), mental health (wellbeing, life satisfaction and quality of life) and the positive effects of sustaining a career ending injury.

Depression occurs when an event disrupts the role by which an individual defines their self-worth especially if they lack an alternative source of self-worth (Brewer, 1993). Athletes who base their sense of self-worth primarily on their athletic performance, are vulnerable to depression following the occurrence of a life event that has threatened their performance of the self-defining role (Brewer, 1993). Crossman. (1997) reported three primary emotions that athletes experience at the initial onset of their injury: frustration, depression and anger in comparison to their non-injured/non-career ending injury counterpart. Past research has reported numerous psychological and physiological consequences as a result of sustaining a career ending injury. For example, an increase in physical pain is often times associated with an increased in negative affective behaviour (Bianco et al., 1999), decrease in self-perceptions such as lower sense of self-control, self-respect, self-esteem, loss of self-worth and self-confidence (Cecić-Erpič et al., 2004; Arvinen-Barrow et al., 2017; Taylor & Ogilvie, 1994; Crossman, 1997; Lally, 2007; Kerr & Dacyshyn, 2000), frequent feelings of anger (Arvinen-Barrow et al., 2017; Walker et al., 2007), anxiety (Wolanin et al., 2015; Vaan et al., 2018; Taylor & Ogilvie, 1994); depression (Leddy et al., 1994; Walker et al., 2007; Gervis et al., 2019; Arvinen-Barrow et al.,

2017; Vaan et al., 2018; Cecić-Erpič et al., 2004; Lally, 2007; Kerr & Dacyshyn, 2000; Crossman, 1997), development of an eating disorder (Lally, 2007; ; Kerr & Dacyshyn, 2000; Gervis et al., 2019), somatic complaints such as insomnia, loss of appetite and upset stomach (Leddy et al., 1999), identity loss (Cecić-Erpič et al., 2004; Rohrs- Cordes & Paule-Koba, 2018; Vaan et al., 2018; Gervis et al., 2019), maladaptive coping behaviours such as alcohol or substance abuse (Cecić-Erpič et al., 2004; Lally, 2007; Wolanin et al., 2015; Rohrs- Cordes & Paule-Koba, 2018; Gervis et al., 2019), disappointment (Bianco et al., 1999) and feelings of unaccomplished athletic goals (Cecić-Erpič et al., 2004). Wiese- Bjornstal et al. (1998), reported approximately 10-20% of injured athletes experience extreme depressive symptoms that typically require professional help. Lavallee et al. (1997), studied 48 former elite-amateur Australian athletes, who sustained a career ending injury. Results demonstrated these former athletes were at a greater risk of emotional and social adjustment difficulties than those who voluntarily retired (Martin et al., 2014). Caron et al. (2013) reported similar findings of five National Hockey League (NHL) players who sustained chronic concussions throughout their careers. Participants stated they experienced severe depressive symptoms, anxiety, stress, confusion, paranoia and feelings of isolation. A common theme within the former athletes is how their injuries all became a source of physical discomfort (pain), stress, frustration (Arvinen-Barrow et al., 2017), frequent and persistent feelings of psychological challenges, decrease in self-perceptions (Cecić-Erpič et al., 2004), depression (Kerr & Dacyshyn, 2000; Stoltenberg et al., 2012) and concerns about their overall health and future (Arvinen- Barrow et al., 2017). Additionally, the athlete's perception about their mental health (life satisfaction, wellbeing and quality of life) was also in jeopardy. Sanders and Stevinson. (2017), examined 307 former professional players of which 130 of them retired due to injury. The results revealed that athletes

who experienced depressive symptoms were younger (M= 34.2 years vs. 49.2 years), recently retired (retirement time M= 10.4 years vs. 23.5 years), scored higher in athletic identity (M= 38.9 vs. 28.8) and were more likely to state the reason for retirement was due to injury. The prevalence of depressive symptoms was 38.9% higher in athletes who involuntary retired. The study also noted a significant positive correlation between involuntary retirement, chronic pain and athletic identity. Moreover, "the odds of being depressed were increased by 3.44 (95% CI: 1.29, 8.51) for retirees who sustained a career ending injury. In addition, chronic pain increased the odds of depression by a factor of 1.38 (95% CI: 1.02, 1.86), each unit increased in athletic identity score was associated with a 1.28 (95% CI: 1.14, 1.44) increase in the odds of depression" (p. 1315). Furthermore, the results demonstrated that 16% of the sample population experienced clinically relevant depressive symptoms in correlation with chronic pain and a strong athletic identity.

Life Satisfaction

Life satisfaction is "a cognitive evaluation of one's life as a whole" (Martin et al., 2014, p. 97). Involuntary retirement has been shown to increase an athlete's feelings of anxiety, depression and decrease in levels of life satisfaction (Cecić-Erpič et al., 2004). Kleiber et al. (1992), surveyed 425 former athletes of which 52 had sustained a career ending injury. Those who were forced into retirement through injury reported lower levels of life satisfaction than their uninjured counterpart five to 10 years following retirement. Injured athletes who strongly identified with a high professional sport orientation had the lowest levels of life satisfaction and self-esteem from five to 10 years after retirement, had a lower grade point average, were less likely to participate in course selection, had lower levels of self-perceived success in school and lower levels of perceived value of education after college. Moreover, Russell et al. (2018) found

on average 14 years prior to athletic retirement, athletes indicated lower levels of physical quality of life than athletes who voluntarily retired and the general population. Huffman et al. (2008) assessed health related quality of life (HRQoL) in 694 NCAA athletes who were surveyed on physical functioning (bodily pain) and emotional wellbeing (general mental health, role limitations). The authors reported former athletes scored significantly higher on HRQoL than the general population on all health concepts except bodily pain. In addition, athletes who had a history of injury, tended to score significantly lower on all health concepts except for role limitations as a result of emotional problems than athletes with no history of injury.

Loss

Feelings of Loss

Athletes are faced with various types of losses as a result of sustaining a career ending injury such as loss of identity (Albion, 2007; Lake, 2016), lack of control (Fortunato & Marchant, 1999), financial loss, loss of social support (Albion, 2007), increased feelings of anxiety due to the loss of an athletic regiment, difficulty in establishing a new daily routine for themselves (Park et al., 2013; Carapinheira et al., 2018; Lake, 2016), loss of position on the team, and connectedness to their teammates (Crossman, 1997). Former athletes also described feelings exclusion from their teammates, uncertainty about the relationship they had with them as well as jealousy because they were physically unable to continue sport participation which caused further emotional distress and lower levels of self-worth. Alternatively, athletes who voluntarily retired, were more likely to keep in contact with their teammates than athletes who were forced into retirement (Muscat, 2004).

Financial Loss

Another mediating factor of involuntary retirement is the loss of financial compensation. Arvinen- Barrow et al. (2017) examined three professional male cricket players from England and Wales who all sustained career ending injuries. When the athletes were asked about their current financial situation, they discussed the hardships of not knowing where their next paycheck will come from. One athlete in particular stated that the company would not compensate for a loss of earning and needing to find an alternative method of financial support; whereas, another respondent indicated that he had an income protection insurance plan placed prior to his injury, which gave him additional time to find another source of income. Fortunato and Marchant. (1999) reported similar findings, participants indicated a lack of financial planning (saving money, pre-retirement plan) prior to their injury because they assumed their athletic career would continue without disruption. Researchers have established, more often times than none, athletes' express difficulty in trying to find a new job however, the challenges stemmed from a lack of qualifications for the job or they were less likely to be selected for the desired job (Cecić-Erpič et al., 2004).

Physical Attributes

Physical Limitations

Past research has examined the long-term effects of different types of sports related injuries (back, joint, muscle etc.) and despite the type of injury and severity, athletes were at an increased risk of osteoarthritis, stiffness, pain, other possible ailments (Kujala et al., 2003), permanent disability as well as functional limitations (Russell et al., 2018). Sanders and Stevinson. (2017), reported athletes who showed signs and symptoms of depression were younger, more recently retired, possessed a stronger athletic identity and were more likely to

retire due to a career ending injury than their non-injured counterpart. Additionally, the presence of continuous symptoms (pain, impairments) from the athlete's initial injury also promoted the development of depressive symptoms and increased pain levels compared to athletes who voluntarily retired. Thus, demonstrating athletes who retire from a career ending injury are more likely to possess a strong athletic identity, experience an increase in mood disturbances and long-term pain levels. It is also worth mentioning, that not all injuries are visibly distinguished, Caron et al. (2013) assessed five National Hockey League players who suffered from severe medically diagnosed concussions that terminated their athletic career. As a result of their concussions, athletes expressed the short- and long-term effects of their injury. For instance, at the initial onset of their injury, athletes indicated they experienced vision impairments. In regard, to long-term effects of their injury, the athletes discussed suffering from concussion related symptoms 4 to 14 years after retirement in their daily lives such as vision impairments, headaches, head pressures, increased levels of fatigue, reduced cognitive abilities, decreased levels in the effectiveness of memory recall, communication challenges and difficulty working. Moreover, one participant described how he contemplated suicide due to the continuous pain he felt from his headaches. Thus, overall, the long-term effects of their injury continued to negatively impact their mental health and increased their likelihood of experiencing mood disturbances.

Body Dimensions

An additional consequence of sustaining a career ending injury are the physical changes the athlete will face as they gradually transform from the athletic ideal body to the "suffering body" (Stephan et al., 2007). The suffering body is described as "weight gain, degradation of physical competencies, bodily tensions, pain and tiredness" that is caused by the reduction in

training and change in eating habits the athletes experience throughout their transition into retirement (Stephan et al., 2007).

Competitive and elite athletes typically base their sense of self-worth on their physical appearance, muscle mass, fitness levels and physical performance levels (Stephan and Brewer, 2007). However, as they progress into retirement, they may experience unsatisfactory bodily changes that can negatively affect their self-esteem as well as cause a decrease in feelings of pride, satisfaction, happiness and confidence (Stephan et al., 2007). For example, 10 Olympic athletes who voluntarily retired after the Sydney Olympic Games emphasized the importance of what it physically takes to be an elite athlete (physical competence, output of athletic performance) and being able to physically differentiate themselves from the general population of what it means to be a top athlete. By doing so, it created a separation of their elite status within the public eye, by demonstrating they are not similar to the general population. However, once the athlete sustains a career ending injury and the body dimensions of the athlete becomes disrupted, it causes internal (emotional) and physical (weight gain, degradation of physical competencies) chaos within the athlete (Stephan et al., 2007).

Mind and Body Dualism

Mind and body dualism is a fairly new concept in sport psychology in regard to the interaction of the athlete's mentality of wanting to continue their athletic involvement however, their body being physically unable to perform. Little is understood about the nature of mind and body dualism including how sustaining a career ending athletic injuries give rise to the phenomenon. Cosh et al. (2013) extracted 27 newspaper articles reporting the retirement (age, injury and other reasons) of five female and 16 male athletes. In regard to the athletes who sustained a career ending injury, Cosh et al. (2013) reported as a result of the discrepancies

between both mind and body, it created an overall sense of sadness and misfortune. Furthermore, the athletes also expressed wanting to continue to compete and having the mental ability to do so however, their damaged bodies would not allow them to physically perform at the level they needed it to.

Coping Mechanisms

Adaptive Forms of Coping

Effective coping occurs "when an athlete is able to use and develop the necessary resources and to avoid and overcome potential transitional barriers" (Kuettel et al., 2017, p. 28) or by "constantly changing cognitive and behavioural efforts to manage specific external and internal demands that are appraised as taxing or exceeding the resources of the person" (Lebrun et al., 2019, p. 353). This can be accomplished through a change in self-concept, change in both psychological and physiological perspective, lifestyle, achievements, developing a new source of income and creating new relationships or by positively managing the current ones they have (Kuettel et al., 2017). Furthermore, athletes may also use problem focused coping which allows the individual to deal with the stressful situation head on by actively looking for solutions through sources of information, planning or by goal setting (Lebrun et al., 2019). Emotion focused coping examines the internal and emotional responses caused by the situation and stressors such as seeking emotional support, relaxation or meditation (Lebrun et al., 2019). Appraisal coping consists of cognitive strategies for instance, restructuring allows the individual to re-evaluate the situation and to alter/modify their initial thinking process and thoughts of the threat (Lebrun et al., 2019). Lastly, avoidance coping applies to cognitive (ex: cognitive distancing, blocking) and behavioural (ex: removing self from the situation) mechanisms that aid

individuals to avoid, escape or deny a situation (Lebrun et al., 2019). By doing so, it allowed the athletes to experience either a positive or negative transition into retirement.

Kaul. (2017) examined eight former national and international athletes who sustained a career ending injury. The former athletes reported utilizing a variety of different coping mechanisms, namely, hiring a sports psychologist, available social support, working, physiotherapy or focusing on their academics. Moreover, one participant stated they did not use any form of coping mechanisms other than reminiscing about the past of when they were able to compete and the relationship they had with their teammates. By focusing on the past, they inhibited their transition into retirement because they were unwilling to let go of what was and move forward with their future. Similarly, Stoltenburg et al. (2012) studied seven Division 1 and 2 college athletes who sustained career ending injuries. Post-athletic career, the participants indicated they were able to focus on their academics, find new work opportunities, developed a back-up plan, remained a part of the team or participated in activities that they were unable to do prior to their athletic retirement. Comparatively, Arvinen-Barrow et al. (2019) examined three professional cricketers who all sustained career ending injuries. The former athletes discussed primarily using distraction/keeping busy (exercise, self-exploration and work) and future career planning as adaptive forms of coping.

Planning for the Future

Athletes who prepared for retirement through forward-thinking, recognizing life past the athletic lifestyle, developed other interests, disengaged from the sport were less likely to endure feelings of loss associated with the injury as well as were more likely to experience a successful transition (Muscat, 2004). Respondents also stated in addition to focusing on both the reality of their injury and situation, by developing a mental map of life beyond sports (plans for their near future, how

will they achieve it, occupational opportunities and injury management) increased the successfulness of retirement (Muscat, 2004). Stoltenburg et al. (2012), examined seven competitive athletes who stated at the initial onset of their injury, they did not establish any future plans, however, athletes who experienced chronic injuries were more likely to have prepared for the future. Due to pre-retirement planning, it allowed the athlete to expand their self-identity, enhance perceptions of control, strengthen their social identity (Taylor & Ogilvie, 1994), establish new vocational opportunities (Brown et al., 2018), such as, coaching, vocational work and academics (Kaul, 2017; Arvinen-Barrow et al., 2017). As well as social networking (Taylor & Ogilvie, 1994), keeping busy (Arvinen-Barrow et al., 2019; Park et al., 2013), exercise involvement (Grove et al., 1997), continuing to be actively involved in their team or discovering new activities and hobbies to participate in (Stoltenburg et al., 2012).

Positive Thinking and Rehabilitation

Positive thinking can enhance the likelihood of a successful transition by acknowledging the severity of the injury and then focusing on becoming healthy by actively thinking in a constructive and optimistic manner (Loberg, 2008). Studies have supported the benefits of goal setting, positive self-talk, imagery and relaxation training (Russell, 2000). Goal setting can be achieved through improving one's performance levels at physiotherapy/rehabilitation which can be accomplished in three ways: 1) Performance goals "identify the actual performance that is desired such as realistic, specific, measurable, time-oriented and under the athlete's control"; 2) Process goals recognizes the capabilities that need to be reassessed in order to obtain the performance goal then define the steps needed to take to achieve the capabilities; 3) Personal goals focuses on "identifying outstanding characteristics or attributes of the athlete and then define how they can be emphasized and used on a day to day basis" (Russell, 2000, p. 45).

Athletes who have successfully rehabilitated from their injury tended to perceive that their treatment was effective, had higher levels of positive social support and were highly motivated to learn from their circumstances as well as adhere to the treatment plan than their counterpart (Crossman, 1997). Wiese-Bjornstal et al. (1995), found rehabilitation adherence has been positively linked to personal (self-motivation, importance and value placed on rehabilitation), behavioural (psychological skills, social networks and risk taking), situational factors (perceived exertion during rehabilitation comfort of the clinical environment) and cognitive appraisal as reported by Walker et al. (2007). Thus, by actively partaking in physiotherapy, utilizing several psychological skills and social support can improve the likelihood of the athlete experiencing a successful transition into retirement.

Professional Help

Former athletes may seek out the help of psychologists or sports psychologist/mental performance consultant to aid them during the transitional phase. Both Arvinen-barrow et al. (2017) and Kaul. (2017) indicated that their participants sought out of the guidance of a sports psychologist. Respondents stated their sports psychologists emphasized positive self-talk, changing their overall mentality as well as the athletes were able to verbalize their thoughts and feelings about accepting their injury and the transitional process.

Therapists may also use cognitive based coping or restructuring to help the athlete. Cognitive appraisals are the “processes through a potentially stressful situation that is assessed as being stressful and the individual’s evaluation of the extent of that stress” (Walker et al., 2007, p. 175). Primary and secondary appraisals impact how the individual copes with the overall situation. Primary appraisals encompass the assessment of “what is at stake and taking into account the challenges, benefits, threats and harm/losses”. Secondary appraisals mimic primary

appraisals however, it includes an "assessment of the coping options available to manage the demand" (Walker et al., 2007, p. 175). Past research has found the use of both cognitive appraisals/restructuring and mental imagery can increase positive thinking in athletes during the recovery process and transitional phase (Marthinus, 2007).

Furthermore, successful rehabilitation provided to the athlete can significantly impact the athlete's transition into retirement both psychologically and physiologically. If the athlete maintains a consistent work ethic at physiotherapy and monitor their weekly process through cataloguing (ex: weights being lifted, range in motion, physical mobility), can enhance the athlete's overall mental health and psyche. Additionally, effective communication between the athlete and medical staff (doctors, physiotherapists) is essential to the athlete because the athlete perceives as though there is a genuine concern for their psychological and physiological wellbeing which further promotes the adherence to physiotherapy and rehabilitation regime (Crossman, 1997).

Maladaptive Coping

Maladaptive coping (ineffective coping/crisis transition) occurs "when the athlete is unable to cope effectively due to a lack of resources or inseparable barriers" (Kuettel et al., 2017, p. 28) such as avoidance coping, denial, negative thinking, substance/alcohol abuse, disordered eating or gambling. For example, athletes may spend a prolonged period of time during the transitional phase if they are in denial about the reality of their injury, have false hope that their injury will heal, attempted to be unaffected by their injury or are unable to develop new interests and hobbies outside of sports (Muscat, 2004; Rohrs- Cordes & Paule-Koba, 2018).

Interestingly, Gervis et al. (2019) reported, over the last ten years, professional football players have been vulnerable to the over prescription of pain killers from their doctors and the

overuse of medication to treat their injuries. This can be significantly detrimental to the athlete because it will ultimately cause a dependency on the drug and possible long-term health issues.

Another addictive behaviour, athletes are prone to is gambling. Lim et al. (2017) reported that professional British football players who were currently and previously being treated for gambling were younger players who saw a decline in their athletic performance, contract release or who sustained an injury. However, the athletes who used gambling as a form of coping to deal with their injury, reported more severe mood disturbances and feelings of isolation.

Lastly, as a result of chronic mood disturbances, the athlete may experience an increase in stress levels, low self-esteem and progress into a sedentary lifestyle. They may also develop an eating disorder as a way of maintaining the athletic ideal body type (low body weight and high fitness levels). For example, athletes may monitor their caloric intake or restrict their food intake because they feel as though they do not "deserve" it (Gervis et al., 2019).

Suicide

Past research as suggested that it is not uncommon for athletes to experience severe emotional distress that can ultimately lead to substance abuse, suicide ideation, attempt and suicide as a result of their career ending injury (Taylor & Ogilvie, 1994; Walker et al., 2007). Smith and Milliner (1994) assessed post-injury depression, incidence and risk factors of suicide in five athletes. Based on their findings, they were able to conclude that all five athletes who attempted suicide showed similar emotional vulnerabilities to their injury: 1) Each athlete required and underwent surgery that restricted their participation in their desired sport for at least six weeks to a year; 2) The athlete experienced a deterioration in their athletic skills despite consistent and vigorous rehabilitation; 3) They failed to recover to their pre-injury sport competence; 4) Their position on the team had been replaced by another teammate; 5) They

experienced a successful career pre-injury and lastly; 6) All scored above 40 (ranging from 0-60) on the Profile of Mood States (POMS) depression scale demonstrating high levels of depression. These athletes were also in a high-risk age group (16-18) for suicide which increased their likelihood for experiencing suicide ideation and attempt. Caron et al. (2013) found within their sample population of five NHL players. Retirees discussed they thought about suicide as a result of the physical pain experienced combined with feelings of isolation, anxiety and depression. Athletes who have sustained a career ending injury are highly vulnerable to suicidal thoughts, attempt and suicide, however, a way for the athlete to combat those negative feelings is dependent on how the athlete copes with the injury and the availability of social support offered to them.

Social Support

Forms of Social Support

Social support is "an exchange of resources between two individuals perceived by the provider or the recipient to be intended to enhance the wellbeing of the recipient" (Clement & Shannon, 2011, p. 458). Fernandes et al. (2014) further divides the construct into three themes and subthemes of interdependent dimensions: 1) "Structure feature, examines who is able to provide social support such family, friends, teammates, coaches, physiotherapists/sports psychologists and/or athletic trainers; 2) Functional dimension of support is defined as the actual support that was received or enacted such as emotional support (displays of intimacy or encouragement), esteem support (designed to strengthen an individual's sense of competence), tangible support (concrete assistance for example, financial support), informational support (advice, guidance and suggestions); lastly, 3) Perception feature is the individual's appraisal of the available amount and quality of social support" (p. 445; Brown et al., 2018). Received

support refers to the "naturally occurring helping behaviours that are being provided" (Clement & Shannon, 2011, p. 458) whereas, perceived support is the perception that support is available despite what support is actually sought or received (Brown et al., 2018, p. 72).

Athletes stated that when they received informational support from the organization, former teammates and coaches, they were able to experience a smoother transition into retirement (Brown et al., 2018). Additionally, athletes who obtained tangible support from a formal support program from a national sporting organization, experienced fewer difficulties post- retirement than their counterpart who did not receive social support (Brown et al., 2018). Lastly, emotional and esteem support have been shown to help athletes with account making, reducing emotional distress and increasing positive self-regard (Brown et al., 2018). Arvinen-Barrow et al. (2017) conducted a study on three former elite Irish rugby players who all sustained career ending injuries. Results found that athletes preferred perceived support over any other support because it allowed them to draw strength and confidence from within the community as well as they were able to bond with other athletes who shared the same experience. Furthermore, researchers have used both buffering and direct-effect hypothesis to explain the benefits of different types of social support. The buffering hypothesis "moderates the harmful effects of stress and indirectly affects injured athletes' health and wellbeing" (Clement & Shannon, 2011, p. 458). For instance, by having an adequate amount of social support, it will decrease the level of stress experienced by the athlete by increasing their psychological wellbeing. The direct effect/main effect states the amount and effectiveness of social support influences psychological and physical wellbeing. However, if the athlete receives an inadequate amount of social support, their psychological and physiological state is vulnerable to experiencing negative emotions.

Thus, often times athletes seek social support from those who are closest to them such as family members, spouses and friends because they can offer work opportunities, career assistance, emotional support (Brown et al., 2018) or they may seek out help from their teammates, coaches, athletic trainers or professional help (Park et al., 2013). Caron et al. (2013), participants' informed investigators that their primary source of social support was offered by their significant others. For instance, due to the severity of their concussions, their wives acted as the primary caregiver and the breadwinner of the family since the husbands were unable to work. One athlete in particular reported receiving positive support from their former coach and team doctor, which significantly helped the athlete in coping throughout the transitional process.

Brown et al. (2018) studied eight former elite athletes from the United Kingdom who competed in the Olympic Games, three out of seven participants involuntarily retired through injury. Results demonstrated that as athletes moved through the transitional process, they expressed psychological vulnerabilities, feelings of loss, denial and uncertainty about their future. Based on the emotional reactions of participants, researchers found two superordinate themes, feelings of being cared for and understood from family, mentors, peers and support within the sport as well as having the ability to seek and ask for support.

Thus, overall, positive social support can be regarded as support from family, friends, spouses, teammates and coaches who can offer perspective, enhance emotional balance, social (Muscat, 2004) and life explorations. In addition, it is also beneficial for the athletes to talk to others who have been through similar circumstances who can offer career advice, emotional support and mentorship (Brown et al., 2018). Moreover, athletes may also cope by remaining an integral part of the team by becoming a student coach or through other miscellaneous team jobs (Rohrs-Cordes & Paule-Koba, 2018). The advantages of having an adequate amount of social

support can enhance psychological wellbeing (Fernandes et al., 2014), self-worth and optimism through the reassurance of teammates that they are still part of team (Muscat, 2004).

Ineffective Social Support

Not all athletes receive the type of support they require to have a successful transition into retirement. Respondents from the Caron et al. (2013) study discussed the detrimental effects of receiving minimal support from their coaches, team or doctor. For instance, retirees stated their coach and hockey personnel, did not believe the severity of their injury and required proof. Or, the doctor(s) downplayed the severity of their symptoms and told them that after they scored a couple of goals, they would start to feel better (Caron et al., 2013). Alternatively, past research has found coach(es) to become distant or they isolated the player during training, acted insensitive towards the individual or provided insufficient rehabilitation guidance (Fernandes et al., 2014; Rohrs-Cordes & Paule-Koba, 2018). Notably, as a result of the coaches and doctors to be in a position of power and treating the athlete as if their injury is insignificant or a nuance, further promotes psychological distress and turmoil within the athlete.

Lastly, when athletes lack support from their primary (family) support system, it causes a multitude of negative emotional responses for example, an increase in uncertainty, anxiety, low efficacy (Muscat, 2004), increase in mood disturbances, depression, emotional (Fernandes et al., 2014; Clement & Shannon, 2011), psychological and physiological distresses (Rohrs-Cordes & Paule-Koba, 2018). Research has found when parents highly value the ability, talent and accomplishments of the athlete, it reinforces their affection, attention, support and encouragement towards the athlete. However, once the individual suffers from a career ending injury, the parent-athlete relationship significantly suffers, and the athlete becomes undervalued. As a result, there is little to nothing that is maintaining that relationship (Muscat, 2004).

Positive Effects of Career Ending Injury

Typically, athletes express a multitude of detrimental psychological affects however, there are instances where athletes are able to prevail during a time of emotional crisis. For example, if an athlete experiences a successful, positive and effective rehabilitation, they are more likely to report feelings of hopefulness, enthusiasm and optimism during their progress. In addition, some athletes report feelings of relief (Walker et al., 2007) post-athletic career because it allows them to explore new social roles, occupational opportunities, scholastic goals as well as new interests and hobbies (Kerr & Dacyshyn, 2000; Arvinen-Barrow et al., 2019) they were unable to devote time to prior to the termination of their athletic career.

In conclusion, depending on the type of social support received and from who significantly impacts whether or not the athlete will experience a positive transition into retirement. As previously mentioned, retirees who received positive support from their family, friends, teammates, coaches/athletic trainers etc. who offered them either emotional, esteem, tangible, informational or received support were more likely to experience a successful transition into retirement than their counterpart who did not receive any or limited amount of social support.

CHAPTER THREE: METHODOLOGY AND PROCEDURES

Research Design

I performed a mixed method study with a retrospective focus. It is worth noting, I conducted a mixed method study because the quantitative analysis allowed for a general understanding of the athletic career termination process whereas, the qualitative analysis allowed for the possible expansion of subthemes that emerged throughout the interview that may have not been assessed during the questionnaire. Specifically, part 1 featured a retrospective survey with

an expost-facto variable of retirement (voluntary, involuntary) type designed to ask former athletes to recall the circumstances surrounding their retirement as well as the different avenues of the retirement process. Part 2 featured a sub-sample of those surveyed with an in-depth interview that explored the themes of the transitional process into voluntary and involuntary retirement.

Inclusion Criteria

The inclusion criteria encompassed the following: 1) elite (international, national, Olympic, semi-pro and professional) or competitive (sports club, Division 1 and 2, high school varsity, college and university varsity) athletes; 2) male and female; 3) athletes who have involuntary retired as a result of sustaining a career ending injury and athletes who have voluntarily retired 4) ages 18 to 50+ years old.

Exclusion Criteria

The exclusion criteria included 1) non-athletes and/or recreational athletes; 2) athletes who were able to return to play; 3) less than 18 years old; or 4) terminated their athletic career due to illness/health problems or deselection.

Recruitment

The recruitment process took place from July 2020 to February 2021. To successfully acquire data from participants, former competitive and elite athletes (male or female), ages 18 to 50+, were recruited from all over Canada through networking with coaches, posters within the gyms, sports club, physiotherapy offices etc., contacted the faculty of EPHE (exercise science, physical and health education) at the University of Victoria as well as the use of social media outlets such as Instagram and Facebook. Individuals who are in charge of the institutions, fitness centres, gyms and social media presence were asked to post the recruitment poster on their platform.

Justification of Sample Size

Prior studies exploring similar relationships between psychological functioning and athletic injury have typically reported effects between small (r= 0.2) to medium effect size (r = .30) (Sanders & Stevinson, 2017; Giannone et al., 2017). Prior to the COVID-19 restrictions, I had a sample size of 102 participants and a medium effect size at a significance of 0.5 and a power of p = 0.80. However, post-COVID- 19 restrictions, the new sample population consisted of 50 participants. The factorial ANOVA main analysis (retirement type on psychosocial outcomes) and the exploratory analysis (psychosocial factors on strength of athletic) would have required a sample population of 180 participants, thus, resulting in the exploratory analysis being underpowered. An independent t-test (differences by retirement) also had a medium effect of .51. The power analysis was conducted through the use of the G* power program (Faul, Erdfelder, Buchner, & Lang, 2009).

Ethical Approval and Informed Consent

The present research project was approved by the Human Research Ethics Board (ethics protocol number: 20-0075) from the University of Victoria in British Columbia.

Prior to the completion of the study, all participants were emailed a consent form (located in Appendix I). Due to the administration of the online questionnaire, informed consent was given once the participants had completed and submitting the survey.

Data Collection

Instruments

The content and themes of the survey included identity, mental health, mood disturbances, body dimensions, coping mechanisms and predictors such as physical attributes, physical exercise and financial consequences. All measures are located in Appendix C.

Independent Measure (Exploratory)

To examine athletic identity, the Athletic Identity Measurement Scale (AIMS) developed by Brewer et al. (1993) was utilized (Brewer et al., 2010). I modified all questions from present tense to past tense to assess the athlete's athletic identity during the adaptation process. Athletic identity is how much an individual, thinks and feels as an athlete. The scale consists of three subscales that include 10 statements which examines the social, exclusivity and negative affective behaviours (Visek et al., 2008). Social identity is the "degree to which an individual views him/herself as occupying the role of an athlete, items 1, 2 and 3. Exclusivity identity is the degree to which an individual's self-worth is established through participating in the athletic role, items 4, 5, 6 and 9. Lastly, negative affectivity is the degree to which an individual experiences negative emotions from unwanted sporting outcomes, items 8 and 10" (Lamont-Mills & Christensen, 2006, p. 5). Each item is rated on a seven-point Likert scale: 1 (strongly disagree) to 7 (strongly agree). Scores ranged from 1 to 70 with higher scores signifying a stronger athletic identity. Sample questions are as follows: "I considered myself an athlete" or "I felt bad about myself when I did poorly in sports". Brewer et al. (2010) reported an internal consistency of 0.81 and stated a correlation of 0.96 between the AIMS and an earlier 10-item version of the instrument for which a 0.89 test-retest reliability coefficient over a one-week period was obtained (Brewer et al., 1993). Internal consistency for AIMS in the present study demonstrated a Chronbach alpha of 0.83.

Dependent Measure

The Mood and Feelings Questionnaire (MFQ) is a retrospective questionnaire that examined the participant's mental state and mood during retirement. I believed that the retrospective questionnaire will enable researchers and myself to understand in greater detail the

experience and perceptions the athlete went through and how to properly and cautiously aid them through retirement. In addition, there was less of a focus on their present emotional state because depending on the number of years since retirement, they are more likely to have overcome the various challenges of athletic and non-athletic factors as well as transitional demands. The Mood and Feelings Questionnaire: long version developed by Angold and Costello (1987), examines how participants have been feeling in the past two weeks. However, for the premise of my thesis, I changed the time period from two weeks to the time in which the athletes have retired from their desired sport which could span from months to years since their retirement. In addition, the original the questionnaire consisted of 33 items however, after revision I extracted three items, now making it a 30-item questionnaire that is rated on a three-point Likert scale: 0= not true and 2= true. Scores range from 0-66 with scores higher than 27 demonstrating a presence of depression. Sample questions are as follows, “I felt miserable or unhappy” or “I ate more than usual”. Sund, Larsson and Wichstrom, (2003) reported an internal consistency and test-retest correlations for three-weeks and three-month intervals at 0.84 and 0.80. Internal consistency for the Mood and Feelings Questionnaire in the current study yielded a score of 0.94.

Mental Health is a six-item measure, rated on a five-point Likert scale 1 (none of the time) to 5 (all of the time). Scores ranged from 1 to 30 with higher scores demonstrating high levels of mental health. The questions asked participants about themselves, retirement and their future. For example, “I was feeling optimistic about the future” or “I felt good about myself”. Internal consistency for the self-created mental health questionnaire demonstrated a score of 0.87.

To determine the type of coping mechanisms employed by the athletes during their retirement process, a modified version of the original COPE inventory (Carver et al.,1989) was

used (Grove et al. 1997). COPE is a 60-item measure rated on a four-point Likert scale (1= I usually don't do this to 4= I usually do this). Coping mechanisms is a "response that is aimed at diminishing the physical, emotional and psychological burden that is linked to stressful life events and daily hassles" (Synder, 1999, p. 5). The modified version was changed from present tense to past tense to refer to athletes' feelings at the time of the injury and retirement process as well as I modified the questionnaire to consist of 48 items. Scores ranged from 1 to 192. For example, "I tried to grow as a person as a result of the experience" or "I discussed my feelings with someone". The coping strategies assessed in the modified version are as follows: acceptance, active coping, alcohol/drug use, behavioural disengagement, denial, focusing on and venting of emotions, mental disengagement, planning, positive reinterpretation, emotional support, instrumental support and suppression of competing activities. Carver et al. (1989) preliminary subscales (mean alpha of 0.73), alpha range of 0.63-0.92 except the mental disengagement subscale, which did not perform well in the dispositioned COPE format of an alpha level of 0.45 (Eklund et al., 1998). COPE demonstrated an internal consistency of 0.86 in the current study. It is worth noting, due to the decrease in sample size, findings were insignificant when assessing each individual type of coping strategy utilized thus, results were clustered together to determine overall significance of coping strategies.

The Contextual Body Image Questionnaire for Athletes (De Bruin et al., 2011) evaluated the different aspects of the athletes' body composition such as appearance, body shape, weight fat percentage and muscularity. The original questionnaire was written in present tense and items were measured with "In daily life/ concerning my sport" however, for the purpose of my study, I modified the statements to "during retirement" to understand the retrospective nature of how the former athlete perceived their physicalities. Furthermore, the original questionnaire consisted of

15-items however, I removed four of the items, now rendering it an 11-item measure with four subscales, rated on a seven-point Likert scale. The subscales are divided into appearance (3 items) for example, “during retirement I thought my appearance was”…, rated from 1 (very ugly) to 7 (very good looking). Scores ranged from 1 to 27 with higher scores demonstrating higher levels of self-perceptions of attractiveness; body shape (3 items) for example, “during retirement I thought my body shape was”…, rated from 1 (much too thin) to 7 (much too fat). Scores ranged from 1 to 21 with higher scores indicating higher levels of negative body shape self-perceptions; muscularity (2 items) for example, “during retirement I thought the muscularity of my body was”…,rated from 1 (much too unmuscular) to 7 (much too muscular). Scores ranged from 1 to 14 with higher levels suggesting the athlete perceives themselves to be too muscular and lastly, body weight (4 items) for example, “during retirement I thought my body weight was”… or I thought my fat percentage was…, rated from 1 (much too low) to 7 (much too high). Scores ranged from 1 to 28 with higher scores referring to higher levels of body weight. To establish the score of the measure, divide the sum of the item-scores by the total number of items on the scale. De Bruin et al. (2011) established a Cronbach’s alpha of the scales which ranged from .83 to .95. The contextual Body Image Questionnaire for Athletes revealed an internal consistency of 0.82 in the present study.

Descriptive Measures

To assess physical activity the Godin Leisure-Time Exercise Questionnaire developed by Godin and Shepard. (1985) was utilized and revised by myself. The original questionnaire reported on episodes, intensity and duration of physical activity in the past week however, because my study has a retrospective focus, I changed the time period to reflect physical activity during recovery (for participants who sustained a career ending injury) and retirement. In

addition, athletes who have voluntarily retired would skip the portion of the questionnaire that asks participants to state type of activities they participated in during recovery. Lastly, I added "if none of these apply to you, please state what physical activity you participated in, how many times a week and length of time" to account for additional exercises the former athlete may have participated in. The questionnaire is a four-item measure that examined type of activities athletes participated in, episodes, intensity and duration for more than 15 minutes. Leisure activities were divided into three categories: strenuous exercise (heart beats rapidly) such as running, jogging, hockey, football, soccer, squash, basketball, cross country skiing, judo, roller skating, vigorous swimming, vigorous long-distance bicycling. Moderate exercise (not exhausting) consisted of fast walking, baseball, tennis, easy bicycling, volleyball, badminton, easy swimming, alpine skiing, popular folk dancing. Lastly, mild/light exercise (minimal effort) included yoga, archery, fishing from a riverbank, bowling, horseshoes, golf, snow-mobiling and easy walking. To determine scoring, frequencies of strenuous, moderate, and mild/light are multiplied by 9,5 and 3, then, the total leisure activity score is computed in units by summing the products of the separate components. For example, (9 x strenuous) + (5 x moderate) + (3 x mild/light). The scoring system is the added into units, for instance, 24 units or more is regarded as active, 14-23 units is moderately active, and less than 13 units is insufficiently active/sedentary. Joseph et al. (2013) determined a good test-retest reliability in prior studies with coefficients ranging from 0.74 to 0.80 (Godin & Shepard., 1985; Jacobs et al., 1993). The measure was also validated with objective measures of physical activity using accelerometers (Sallis et al., 1993).

The following two (physical attributes and financial support/consequences) questionnaires are self-created. I choose to do so to examine the physiological and financial state of the former athletes from years ago depending on time of retirement.

Physical attributes consisted of five open-ended questions about athletes' physical limitations they experienced post- career ending injury and throughout the transitional process. Sample questions are as follows: "what physical limitations did you experience at the time of injury?" Or "did you require surgery? If yes, what were your limitations and restrictions".

Financial support/consequences included four open-ended questions regarding financial wage from sports, challenges in finding a new source of income and work history. For instance, "did you receive a financial wage from sports? If yes, please state how much you earned from your desired sport and for how long? If not, please move onto the next question."

Appendix D, Table 5 details the measures mean, standard deviation, internal consistency and minimum/maximum range.

Topics from Quantitative Data

Topics from the questionnaires were primarily based upon the research questions, themes from past literature (Caron et al., 2013; Stoltenburg et al., 2012).

Sample questions from the survey are as follows: what was your reason for voluntary retiring from sports?; if involuntary retired, please state the reason you terminated your career (circumstances surrounding athletic retirement); I considered myself an athlete (athletic identity); I felt miserable (mood disturbances); I was able to try new things now that I was not involved in sports (mental health); I felt like talking less than usual (coping mechanisms); during retirement I thought my appearance was (very ugly, neither ugly or good looking or very good looking); what type of physical activity did you participate in, how many times a week and for how long? (physical activity); did you require surgery? (physical attributes); lastly, did you receive a financial wage from sports? (financial consequences).

Themes from Qualitative Data

Themes from the interview were highly similar to the themes from the questionnaire. Voluntary retirement interview themes consisted of circumstances surrounding their retirement (e.g.: how did you prepare for retirement?); identity (e.g.: how would you define your athletic identity?); mood disturbances/disorder (e.g.: were you clinically diagnosed with a mood disorder during retirement? Or how did you feel when you retired from sports?); physical activity (e.g.: how long did it take you to start participating in physical exercise again? What activities did you participate in?); physical attributes (e.g.: did you notice a decrease in muscle tone? If yes, how did it make you feel?); body esteem (e.g.: did you become body conscious after retirement?); coping mechanisms (e.g.: what type(s) of coping mechanisms did you use throughout the transitional process? In what ways did you find it beneficial to use those coping mechanisms?) and lastly, social support (e.g.: who was your primary and secondary source of social support? How did they help you?).

Themes from involuntary retirement interviews were similar to those of their counterpart however, it consisted of additional questions to understand the general scoop of sustaining a career ending injury. Themes included circumstances surrounding the injury (e.g.: what injury did you sustain? what was your immediate reaction to being injured?); identity (e.g.: how would you define your athletic identity? how long did it take you to form a new identity or identities?); mood disturbances/disorder (e.g.: at the time of injury, what emotions do you recall experiencing? If you required surgery, how did the experience emotionally impact you?); physical attributes (e.g.: if you required surgery, what physical limitations did you experience as a result of it? how long did you experience those physical limitations?); mind and body dualism (e.g.: athletes are taught mental toughness and when they sustain an injury in practice or

competition, they are told to get up, walk it off or play through the pain thus, as a result of mental toughness, did you find mentally, you wanted to continue playing however, your body was physically unable to do so? For example, would you try to push yourself or continuing practicing but failing to complete the tasks at hand because your injury prevented you from practicing/competing?); body esteem (e.g.: was there a change in your body-esteem post-injury?); physical attributes (e.g.: what changes did you notice the most?), physical activity (e.g.: did you try to remain physically active after you fully recovered?); coping mechanisms (e.g.: what coping mechanisms did you use throughout the transitional process?); social support (e.g.: were your teammates/coaches or athletic trainers a source of social support? Did you remain a part of the team post-injury/retirement?).

Lastly, a standardized demographic questionnaire was employed.

Procedure:

As a result of COVID-19, I contacted (telephone and/or email) both major and smaller cities within the ten Canadian provinces to advertise my thesis recruitment poster in their facility. If the establishment did not answer my email or call, a follow up call was conducted. Upon agreement, they advertised my poster. Furthermore, I reached out to the faculty of Exercise Science, Physical and Health Education at the University of Victoria for their assistance in contacting former athletes that maybe interested in participating in my study. Part 1 (quantitative): an email containing an online link for the survey and consent form was sent out to participants who responded to the recruitment posters or social media. At the end of the survey, participants had the option to partake in a semi-structured zoom or telephone interview. Those interested, emailed me stating their interest in participating in the interview portion of the study. Part 2 (qualitative): consisted of a zoom or telephone interview that discussed the athlete's

adaptation into retirement and the different psychosocial factors. Table 11 in Appendix F describes both voluntary and involuntary participant characteristics. Interviews were conducted between September 11, 2020 to December 3, 2021 from 9am to 6pm Pacific Standard Time. All interviews lasted between 30 minutes to an hour. In addition, to ensure trustworthiness, the single author (RR) was empathetic towards the athlete, I also reconfirmed statements said by the participant as well as if I noticed the topic of conversation made the respondent uncomfortable, I would digress and continue on with another line of questioning. Lastly, all interviews were transcribed verbatim and ranged between eight to 13 pages, single spaced. Each transcript was reviewed twice before the final edits which ended on December 11, 2020.

Study Timeline

December 2019 – January 2020 → Defend proposal.
May 2020→ Create questionnaires.
June 2020 → Part one: Create consent forms and submit ethics. Once finished recruit participants and send out online questionnaires.
July- December 2020 → Part two: continue data collection (thematic analysis, transcribe interviews and organize into themes).
January - February 2021 → Continue data collection.
February – March 2021 → Analyze results/write up.
April 2021 – July 2021 → Continue/finish written results and discussion.
August 2021 → Defend thesis.

Data Analyses

Part 1 Quantitative Research:

The IBM® SPSS® software was utilized to run various statistical analyses namely, checks for normality, descriptives and correlations, homogeneity of variance (Levene's test), an independent t-test and a factorial ANOVA.

The main analysis examined the effects of retirement type on levels of mental health, degree of mood disturbances and amount of coping mechanisms used. The exploratory analysis assessed the effects of strength of athletic identity on levels of mental health, degree of mood

disturbances, degree of physical attributes/body dimensions, and amount of coping mechanisms used. To determine the strength of athletic identity, a median split was performed utilizing the IBM® SPSS® software. Scores above 55 indicated participants possessed a strong athletic identity and scores below 55 revealed retirees possessed a weak athletic identity.

Checks for Normality

To check for assumptions of normality: Kolmogorov-Smirnov, Shapiro-Wilk and the Corrected Kruskal-Willis tests were utilized. All three tests mentioned are non-parametric tests.

Kolmogorov-Smirnov test (goodness of fit) is utilized to examine two samples and compares the data with the normal distribution. For instance, I computed the observed cumulative distribution functions of the two samples and computed their maximum difference.

The Shapiro-Wilk's test was used to examine normality between the different groups: retirement (involuntary and voluntary) and athletic identity (strong and weak). The test demonstrated if the data deviated from a normal distribution. If the test was non-significant ($p > 0.05$) than the sample is not significantly different from a normal distribution. However, if the test was significant ($p < 0.05$) then the sample is significantly different from a normal distribution.

Lastly, the Corrected Kruskal-Willis test was applied as a result of the data violating an assumption of the one-way ANOVA of less than .05.

Additionally, I checked for normality through the use of histograms and dot plot. Based on the skewness of the histogram I was able to determine whether or not the data was positively or negatively skewed as well as if there were any outliers. Dot plots are similar to histograms by showing the distribution of the data in a dotted form, each dot represented a participant and was placed along the distribution of their score.

Descriptives

Descriptives and frequencies in SPSS® were used to examine the mean, standard deviation, kurtosis and skewness, percentages and charts (histograms and box plots) for the circumstances surrounding retirement/athletic career, demographic questionnaire and for the assessment of the dependent variable questionnaires as well as the exploratory analysis (strength of athletic identity).

Checks for Homogeneity of Variance

Levene's test was implemented to assess homogeneity of variance however, if assumption was violated than the Kruskal-Wallis test was utilized.

Analyses

An independent t-test was performed to explore the effects of coping mechanisms and body dimensions/body-esteem (appearance, body shape, weight and muscularity) on retirement (voluntary and involuntary) type in elite and competitive athletes.

Secondly, a factorial ANOVA test was implemented to assess both independent variables: retirement type and strength of athletic identity and dependent variables: mood disturbances, mental health and coping mechanisms.

Part 2: Qualitative Research

Once participants completed the questionnaire, they were eligible to participate in the second portion of the study (semi-structured interviews). Interviews were administered through the University of Victoria Zoom video conferencing service which allowed for each session to be locked and recorded without storing data from a third-party server or through telephone. Upon agreement, I emailed a zoom link to six participants and received two of their phone numbers to conduct the interviews. Once the interview had begun, I paraphrased the consent form and

required their verbal consent before starting the interview process. The semi-structured interviews were utilized to gain an in-depth understanding of the psychological, emotional and physiological process of athletic retirement (voluntary and involuntary) in elite and competitive athletes. Questions were designed as open-ended questions to allow the participant to be descriptive as possible when recalling their experiences.

Themes were followed by Braun and Clarke (2006) six-step process for thematic analysis. 1) "familiarizing yourself with your data, reading and re-reading the data and noting down ideas; 2) generating initial codes, coding interesting features of the data; 3) searching for themes, collating codes into potential themes, gathering all data relevant to each potential theme; 4) reviewing themes, checking if the themes work in relation to the coded extracts and the entire data set; 5) defining and naming themes, ongoing analysis to refine the specifics of each theme; lastly, producing the report, selection of vivid, compelling extract examples" (p. 87).

Four involuntary and voluntary interviews were conducted. Categories and subcategories from both voluntary and involuntary interviews were based upon reoccurring themes and subthemes from past research and the research questions. Seven themes emerged from voluntary athletic retirement interviews: identity (strength of athletic identity, public identity and the absence of an athletic identity), mental health and mood disturbances (positive feelings from athletic retirement, psychological interpretation to athletic retirement), physical activity, physical attributes (muscle tone/mass, fitness levels and weight management), body esteem (levels of body-esteem and self-consciousness), coping mechanisms (adaptive coping mechanisms, remain a part of the team and maladaptive coping mechanisms) and social support (positive and negative forms of social support).

However, I found there to be an insufficient amount of literature on some of the subthemes such as, the timeline and effects of body-esteem from pre- to post retirement, the timeline of physical activity and the numerous effects of how their physical attributes progressed throughout their retirement. Thus, a detailed report of the various subthemes allowed for a complete comprehension of the different avenues the retired athletes experience.

Nine themes emerged from involuntary athletic retirement interviews: circumstances surrounding injury (rediscovery), identity (strong athletic identity, weak athletic identity, development of a new identity/identities, absence of athletic identity and public identity), mental health and mood disturbances (psychological interpretation to athletic retirement, emotional reaction to being injured, emotional reaction to surgery, emotional state post-recovery/retirement and improved psyche), physical attributes (physical limitations, muscle tone and muscle mass, fitness levels and weight management), physical activity, body-esteem (levels of body-esteem and self-consciousness), mind and body dualism, coping mechanisms (adaptive coping mechanisms, physiotherapy, remain a part of the team and maladaptive coping mechanisms), social support (positive and negative forms of social support). Furthermore, there was a limited amount research on a few of the subthemes such as the effects of mind and body dualism in athletes, rediscovery and physical attributes (weight management). Since, there was a scant amount of literature on these subthemes especially mind and body dualism, I believed it would add to future research, our understanding on how athletes interpreted the psychological and physiological relationship of sustaining a serious injury, ability to create another identity outside of the athletic sphere as well as possible healthy and unhealthy weight management techniques.

Missing Data

There were three possible methods to use to address missing data. Namely, complete case analysis, which excluded all the participant's data if they did not respond to one or multiple survey questions or written open ended questions (Papageorgiou et al., 2018). Secondly, the utilization of common point imputation which is used for a rating scale and I would select the middle point or most common chosen answer to fill in their missing value (Sauro, 2015). Or, I contacted the participant about any missing data and ask them to complete it.

CHAPTER FOUR: RESULTS

Quantitative Analyses

Eighty-four questionnaires were emailed to potential participants with seven returned incomplete, one ineligible and 50 completed questionnaires. The final total of participants involved in the present study included 24 voluntary and 26 involuntary retired athletes.

Sample Characteristics

Table 6 details the background and demographic information about participants who identified as normative or non-normative retirement.

The sample had a nearly equal representation of female (54%) and male (46%) participants with a mean age of 29.4 (SD= 8.81). None of the participants from either retirement group identified as aboriginal, 24% identified as a minority, with the remaining identifying as White. Seventy-four percent of retirees received their university education (Bachelor's, Master's or Doctorate Degree) and 23% of former athletes earned more than 75,001$ a year.

Sport characteristics among voluntary and involuntary retirement is located in Table 6. The mean retirement age was 24.7 years (SD= 7.27), average length of time competing in their selected sport was 10.14 years (SD= 5.49) and the average length of time since retirement was

5.38 years (SD=5.62). There was a relatively equal split between competitive (60%) and elite (40%) athletes, most respondents played on a team (n=41) sport compared to individual (n=9) sport. Furthermore, sport participation was divided into two categories: team and individual sports which included however, not limited to rugby (28%), football (18%), field hockey (12%), fencing (2%), powerlifting (2%), and boxing (2%).

Voluntary retirees typically expressed multiple reasons for their motivation to retire. For example, major reasons were prioritizing their academics and/or graduation (33.3%), life reasons such as exploration, next stage of life and/or life demands (25%), aged out of the league (12.5%), sustained multiple injuries that were not career ending (12.5%), timing felt right (8.3%), dissatisfaction in their selected sport/loss of passion (8.3%), sport eligibility ended (8.3%), limited financial support (8.3%), their team failed to qualify for any major games (4.2%), unsupportive coach (4.2%), no longer competing at the competitive level (4.2%), more free time (4.2%), inadequate team (4.2%), focus on their career/find work (4.2%) or were not happy in their selected sport (4.2%).

Former athletes who involuntary retired reported either sustaining acute, chronic or multiple injuries that ultimately terminated their career. Injuries included torn knee ligaments such as ACL, MCL, meniscus (31%), concussions (27%), back and shoulder injury (15.4%), broken bones/ fractures (11.5%), torn ligaments in the wrists/hand (11.5%), spinal cord injury (7.7%), torn labrum (3.8%), soft tissue damage (3.8%), torn rotator cup (3.8%), nerve damage (3.8%), did not respond (3.8%) or torn Achilles (3.2%). (Supplementary Table 7, Appendix E details injury type, physical limitations/restrictions and time period of the injury; Table 8, Appendix E describes financial experience/consequences).

Table 6: Sample Demographics

Characteristics	**Voluntary Retirement (n= 24)**	**Involuntary Retirement (n= 26)**
Demographics		
Age Mean (SD)	27.6 (5)	31.1 (11)
Missing	3	2
Gender		
%(N) Female	46	62
% (N)Male	54	38
% (N)Aboriginal	0	0
%(N)Minority	25	23
%(N)Completed University	87	65
% (N)>$75,000 CAN Family Income	25	38
Sport Characteristics		
Retirement Age in Years (Mean)	23.7 (4.8)	25.6 (9)
Years Competed in Sport (Mean)	11	9
Length of Time Since Retirement in Years (Mean)	5.3	5.8
%(N)Competitive Sport	58	62
%(N)Elite Sport	42	38
Sport Type		
(N) Team	21	19
(N) Individual	3	5
Retirement Season		
%(N)Retired at the beginning of season	20.8	7.7
%(N)Retired during season	12.5	65.4
%(N)Retired at the end of season	50	19.2
% (N)Retired during off season	16.7	7.7
Team Sport		
%(N)Football	20.8	15.4
%(N)Hockey	8.3	-
%(N)Rugby	12.5	42.3
%(N)Soccer	4.2	-
%(N)Cheerleading	4.2	-
%(N)Baseball	4.2	-
%(N)Lacrosse	-	3.8
%(N)Fast Pitch Softball	-	3.8
%(N)Cycling	-	3.8
Individual Sport		

%(N)Track and Field	4.2	-
%(N)Ski Cross	4.2	-
%(N)TaeKwonDo	4.2	-
%(N)Boxing	4.2	-
%(N)Fencing	-	3.8
%(N)Gymnastics	-	7.7
%(N)Powerlifting	-	3.8
%(N)Biathlon	-	3.8
Surgery		
(N)Yes	2	14
(N)No	22	12
Physical Activity		
Physical Exertion Levels During Recovery		
Sedentary	-	2
Moderate	-	-
Active	-	15
Did Not Respond	-	9
Physical Exertion Levels During Retirement		
Sedentary	3	3
Moderate	2	1
Active	16	13
Did Not Respond	3	9
Financial Compensation		
Yes	9	9
No	15	17

Data Normalization

The Shapiro-Wilks normality test showed that all dependent variables (mood disturbances, mental health, coping mechanisms and body dimensions) possessed a normal distribution ($p > .05$). Furthermore, all variables demonstrated normality within the range below the skew of 2 and below the kurtosis of 3 (DeCarlo, 1997, p. 292). In addition, Levene's test was conducted to assess homogeneity of variance assumptions across the retirement groups for each dependent variable. The results yielded that mental health had differential variances by retirement type $F(1, 48) = 6.98$; $p = .01$, but mood disturbances and coping mechanisms variables had acceptable homogeneity ($p > .05$). The Kruskal-Wallis test was implemented to account for the failed homogeneity (Levene's test) of mental health in all tests using this dependent variable.

Main Analyses

Effects of Mental Health, Mood Disturbances and Coping Mechanisms on Retirement Type

An independent t-test was used to examine the effect of retirement on coping mechanisms, and body esteem (see Table 9). None of the effects were statistically significant, and all 95% confidence intervals crossed zero.

A factorial ANOVA examined the effect of retirement type on mental health, mood disturbances and coping mechanisms. Athletic identity (weak, strong) was also explored as a fixed factor within these analyses (see Table 10). Results revealed a borderline main effect of retirement type on both mental health [$F(1, 49) = 3.62$, $p = .063$] and mood disturbances [$F(1, 49) = 3.89$, $p = .055$], but there was no significant effect of retirement on coping mechanisms. Findings indicated former athletes who retired in an involuntary manner reported lower mental health and higher mood disturbances compared to those reporting voluntary retirement.

In addition, exploratory findings displayed effects for strength of athletic identity on both mental health $F(1,49) = 5.08$, $p = .029$) and mood disturbances $F(1,49) = 6.62$, $p = .013$), but there was no effect on coping mechanisms. Specifically, those with a weaker athletic identity scored higher on mental health and lower on mood disturbances than those with a stronger athletic identity. There was also no interaction between athletic identity and retirement on any variable.

Table 9: The Effects of Coping Mechanisms and Body Dimensions (appearance, body shape, muscularity and body weight) on Retirement Type

		Voluntary Mean (SD)	Involuntary Mean (SD)	$t_{1, 48}$	*Effect Size D (Point Estimate)*	95% CI Lower (Effect Size d)	95% CI Upper (Effect Size d)
DV	Coping Mechanisms	105.29 (14.52)	112.38 (13.26)	-1.81	-.511	-14.99	.81
	Appearance	13.33 (4.10)	11.96 (3.79)	1.23	.35	-.21	.91
	Body Shape	9.46 (2.65)	9.88 (2.08)	-.634	-.18	-.74	.38
	Muscularity	6.83 (2.14)	6.62 (2.23)	.352	.10	-.46	.65
	Body Weight	19.67 (5.16)	20.31 (3.40)	-.523	-.15	-.70	.41

Note: DV= Dependent Variable; SD=Standard Deviation

* p<.05

** p<.01

† p<.1

Table 10: The Effects of Mental Health, Mood Disturbances and Coping Mechanisms on Retirement Type and Strength of Athletic Identity

					Main Analysis	**Main Analysis**		**Exploratory Analysis**	**Exploratory Analysis**	**Exploratory Analysis**	**Exploratory Analysis**
DV	Voluntary Weak AI Mean (SD)	Voluntary Strong AI Mean (SD)	Involuntary Weak AI Mean (SD)	Involuntary Strong AI Mean (SD)	R ($F_{1,49}$)	R η^2 partial	Corrected Kruskal-Wallis	AI ($F_{1,49}$)	AI η^2 partial	AIxR ($F_{1,49}$)	AIxR η^2 partial
Mental Health	22.63 (2.19)	20.25 (4.80)	20.67 (3.50)	17.71 (4.93)	3.62^{t}	.07	.027	5.08*	.10	.06	.00
Mood Disturbances	12.63 (7.29)	18.63 (13.85)	16.56 (10.26)	28.29 (14.01)	3.89^{t}	.08	-	6.62*	.13	.69	.02
COPE	103.06 (15.67)	107.63 (17.12)	108.44 (12.48)	114.00 (14.37)	1.73	.04	-	1.28	.03	.01	.00

Note: SD=Standard Deviation; AI = Athletic Identity; R= Retirement; I= Interaction; DF= Degrees of Freedom

* $p<.05$

** $p<.01$

^{t} $p<.1$

Themes and Subthemes from Athletic Retirement Interviews

The following categories and subcategories were based upon reoccurring themes and subthemes from past research. Seven homogenous themes emerged from both athletic retirement types specifically identity (strength of athletic identity, public identity and absence of athletic identity), mental health and mood disturbances, physical activity, bodily dimensions (muscle tone/mass, fitness levels and weight management), body esteem (levels of body-esteem and self-consciousness), coping mechanisms (adaptive coping mechanisms, remain a part of the team, and maladaptive coping mechanisms) and social support (positive and negative forms of social support). Additionally, three heterogenous themes emerged from involuntary retirement such as circumstances surrounding injury (rediscovery), physical attributes (physical limitations) and mind and body dualism. Table 11 (voluntary retirement) and Table 12 (involuntary retirement) details interview sample characteristics in Appendix F. Table 13 in Appendix H describes themes/subthemes and example quotes from voluntary and involuntary retirement interviews.

Identity

Identity is defined as a "multidimensional construct that is made up of an individual's self-image and self-schema that is both enduring and dynamic" (Lally, 2007, p. 86). Athletic identity is the "degree to which an individual identifies with the athletic role" (Stephan & Brewer, 2007, p. 67). Four subthemes emerged from identity: strength of athletic identity (strong and weak athletic identity), public identity, development of a new identity/identities and the absence of athletic identity.

Strength of Athletic Identity

Weak Athletic Identity

All four participants who voluntarily retired and one participant who involuntarily retired weakly identified with the athletic role, primarily due to possessing multiple identities outside of the athletic environment.

Participant 1 remarked “I didn’t play rugby until I got to university, I’m a kin student and I also play rugby”.

Participant 2 indicated “there was actually certain parts of that identity that I kind of wanted to get away from I guess, there were positives in terms of I met some of my closest friends through football but I do prefer to be seen as more individualized so getting away from this sport allowed me to I guess think more for myself.”

Participant 3 started “I wasn’t really so much all about sports for me, I was a university student, so I had other things to do”.

Participant 4 explained “even when I was playing football, I was really focused on seeing my friends, spending time with my girlfriend and seeing my family.”

Consequently, participant 5 from involuntary retirement answered by “having a weak athletic identity probably made it easier ‘cause I know I wanted to be a nurse so I kind of focused on that and helping people in another sort of way.”

Strong Athletic Identity

Three of the four participants from involuntary retirement described the development and the challenges surrounding possessing a strong athletic identity.

Participant 6 explained the personal and interpersonal effects of her athletic identity throughout her university career. “I definitely did have a strong sense of an athletic identity

because it was just engrained in my entire student life and all this stuff was at the forefront of everything I did as a student athlete, I know they say student comes first but for me, it was the athletic part came first." She added "we (teammates) spend so much time together, so much time as the rugby team, it was like my identifier, that was literally who I was as a person, just walking on campus when you had your athletic gear on, I felt like it was my identifier."

Similarly, participant 7 recalled "I would say while I was in school and playing the sport, it was a strong identity because I was living with my teammates, we worked out together and we went to practice together and they tell you, you're a student first and then athlete second (laughs) but everyone knows you put your sport first."

Participant 8 replied "I felt two steps behind everyone else who either wasn't an athlete or didn't see themselves as an athlete, more so than anything else, people who took more time in worrying about other aspects of their life or had the luxury to do so, and still be a high functioning athlete so I definitely felt a little stifled or a little stunted in terms of growth, it was definitely a challenge."

Public Identity

Public identity is described as the "extent to which the individual is known and recognize by others as an athlete, for instance, they are psychologically fortified by the public acclaim, and this public reputation becomes a part of the athlete's overall identity" (Webb et al.,1998, p. 68). Mixed feelings arose in the context of how the former athletes interpreted the public's perception of their retirement.

Participant 1,3 and 7 did not notice whether or not there was a difference in the perception of their peers. Participant 1 stated "I don't know if my identity was ever (name) that plays rugby but rather just (name)."

Participant 2 discussed in greater detail the different avenues of his social identity. As he described “in terms of how other people see you, you’re hanging out with other people that play that sport, it reflects a group persona, so, you definitely feel like a football player, when you wear an athletic jacket with five or six other people that are wearing an athletic jacket, it feels it’s very group oriented.” From a personal standpoint after his retirement, he answered “I was definitely happy that I wasn’t being seen as an athlete anymore for that period because it allowed people to build a more natural idea of who I was when not associating me with a sport or a certain social group.” Lastly, he further goes onto to explain his frustrations towards some of his peers who did not necessarily understand his reasons for retirement because they were limited to the purview of the team’s successes. He added “I think a lot of people are understanding of that (retirement) but some people you know they don’t necessarily get it ’cause maybe they weren’t an athlete throughout their life, they see game day and they see all the perks, but they don’t see all the hours of practice and time that you need to be successful so whenever I would have those conversations, I would always take anything, anyone would say with a grain of salt ‘cause maybe they didn’t know where I was coming from necessarily.”

Participant 4 remarked “if I would see other players that I played with that are still playing or old coaches like out in the public area, then I would definitely feel like they perceived me a little differently, like this guy isn’t playing anymore or he’s probably rusty or he’s not that great anymore, maybe they aren’t as athletic as they once were.”

After her injury, participant 5 felt that her peers viewed her as the injured athlete rather than the athlete she once was.

Participant 6 detailed the benefits of having a multidimensional identity later throughout retirement. “After my injury, since I did kind of have that extra time to explore different avenues,

different groups or different opportunities, that's when I really was more multifaceted, like some of the other volunteer work I did on campus they only knew me as (name), and I still have the rugby bubble, I had my work bubble so I kinda had more time to venture out to try different things or meet other people."

Lastly, participant 8 explained "it (people's perceptions) didn't make me feel any less about myself, it made me re-analyze or just take note of how people see me and how I need to value them in my life, if someone were to walk up to me and the only thing they wanted to talk about, the only thing they pushed to talk about was football or me as an athlete even if I tried to direct the conversation in other areas then I'll act pre-emptively."

Development of a New Identity/Identities

Participants from voluntary retirement and one from involuntary retirement did not express having to create or establish new identities. Whereas, three of the four involuntary retired athletes declared they were able to create new identities outside of their athletic persona.

Participant 6 new identity occurred as a result of an opportunity presenting itself to become the president of the Lettermen club at Wilfrid Laurier University. As she verbalized "one of the men's rugby players were like hey, we're letting girls into this organization, I think you would great to be a part of it so I was like okay, I got the time now, I can't practice so I kind of dove into that and that led me to becoming the first female president of a club like that's huge, that's still a major accomplishment that's not really related to sports at all and you did that yourself and you didn't do that being an athlete, it really helped me to kind of shift the way I viewed myself and no longer focus so much on you have to be an athlete to be defined, like you can actually do a lot just because of the person you are. And by throwing myself into that also opened me up to different career opportunities and it allowed me to see the different vast of

myself where it's like okay (name) that's part of the Lettermen stuff but then I got more creative to, I started writing a blog or find other things that I was great at and I started highlighting that so my involvement in the Lettermen club was definitely the catalyst into me finding myself a little bit more."

Participant 7 asserted "I'd say, I'm still in the process of working on that but I think that I've had to kind of redefined myself outside of my sport and my comfort zone and I feel like I really push myself out of my element and I have been able to, so now I have my job, I'm a security guard so I have both coworkers and friends that I've made that are totally different from the ones I played sports with, so I have that group now and we have the same goals of being a police officer."

Participant 8 recalled "I'm not creating a new identity, the strong athletic identity is just taking another function, it's just being repurposed, in one aspect of it, it's being compartmentalized but in another aspect of it, it's being used as an insight, its being used as a point of view, while being injured but still in school, I was definitely a mentor and kind of taking kids through what was going on in my head as a fifth year as someone who is injured and what not and school and stuff. Going back to repurposing, it allowed me to repurpose the decade I spent being a football player and like I said I'm still in away cultivating that persona but not as my only personality not as my one thing so I'm still building myself as an athlete but just I'm not hinging on it, it's not my foundation."

Absence of Athletic Identity

All eight participants described in detail the varying effects of losing their athletic identity.

Participant 1 explained that she did not experience any sort of psychological or social challenges when detaching from her athletic identity.

Participant 2 mentioned “it definitely paints you in a certain light, other people’s action does reflect on you and that was a big part of the reason I’d say it was nice to kind of gain that individualism after leaving the team.”

Participant 3 suggested that he felt bored without his athletic identity and often times reminisced about competing again.

Participant 4 voiced “I did have the feeling of loss but the emotion that was experienced would have been half sadness and confusion like what would I do to fill my time now?”

Participant 5 detailed the back and forth notion of losing and maintaining her athletic identity. For example, due to the surgery date scheduled around the same time as she started university, her recovery was a constant reminder of her injury (wearing a knee brace, walking with crutches and pain) and athletic career which prolonged her attachment to her athletic identity however, without her athletic identity, she felt depressed.

Participant 6 remaked “in the situation of how my injury occurred during a game, it just felt like it was ripped away from me and it wasn’t that I progressed into it. So, it was definitely something I struggled with after because it’s like okay I am not on the pitch, I’m in the stands now watching the girls play, so who the hell am I? I struggled there because I’m not (name) the rugby player ‘cause I am no longer playing so what am I? Am I (name) this? Am I (name) that? So yeah, I definitely struggled there to figure it out. And it definitely did impact my mood, I would say I slipped into a low, it wasn’t a full on depressive state but looking back now, it’s like I obviously wasn’t happy, just low, just negative thoughts of just like my life in a sense of like okay what am I supposed to do now? I still have school to finish so it’s like this piece of me is no

longer a part of me which was an even a bigger reason why I went to that school in the first place so it's definitely just sad, so angry with myself, frustrated, and at some points I just lacked motivation to do other things, like I can barely walk, I just didn't want do anything and it took me awhile to kind of get out of that funk of like okay pull yourself together you still have other things going for you, you just kind of have to focus on that, instead of just focusing on the negative things that I can no longer control."

Participant 7 detailed "it just made me very emotional and sad and I just I viewed my body differently, I was just disappointed and it's definitely tough not having that sport identity anymore."

Lastly, participate 8 indicated "I still do identify as an athlete. I don't identify as a football player, but it feels freeing. Less confined. Being an athlete means that I'll always be aiming to be better at building and using my body."

Mental Health and Mood Disturbances

Mental health is defined as a "state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" (World Health Orgainzation, 2014). For the purpose of the study, mood disturbances are described as negative thoughts, feelings and behaviours that impacts an individual's mental health. Two subthemes arose from mental health and mood disturbances from the voluntary retirement interviews: positive feelings and common emotions from athletic retirement. Four subthemes emerged from mental health and mood disturbances from the involuntary retirement interviews: emotional reaction to being injured, emotional reaction to surgery, emotional state after recovery and retirement and improved psychological state.

Positive Feelings from Athletic Retirement

Three of the four former athletes who voluntarily retired expressed feelings of relief upon retiring.

Participant 2 detailed “it benefitted me, having the different outlets to turn to when I wasn’t playing the sport anymore, I would say that since I had already established that I was working and school was important, I felt like putting more of my time into those areas. I’ve seen results in other areas how I personally perform at work, I have more energy in general just to pursue other things and be attentive while doing them, I felt like anything outside of football when I was playing just wasn’t gunna receive that same level of attention because football was something that was every day.” He also saw an improvement in his sleep patterns and developed regular healthy eating habits that was challenging to maintain while he was actively involved in football.

Participant 4 discussed three advantages of retiring from football, namely, he would no longer have to succumb to the performance pressures and expectations of his coaches and others. Secondly, in regard to his personal life, the extra time allowed him to decompress, relax and finally had time for himself as well as his loved ones. Thirdly, one of his former football acquaintances offered him a job to coach a high school football team. He stated “so that’s kinda what has changed things for me like when I do miss sports and think back on it I’m like awh, I’d love to participate in it again, but I get to participate in that sport still because I coach now, and it’s awesome, I love that.”

Psychological Interpretation to Athletic Retirement

Common emotions experienced during athletic retirement primarily stemmed from the absence of the sport itself such as missing the competition, time and effort spent preparing for

the sport, the challenges, activeness, social interactions, the adrenaline, the atmosphere and the energy of how the sport environment made them feel. From an individualistic perspective, three of the former athletes described some form of negative emotions.

Participant 1 recalled “having a fall sport, it meant that I had the rest of the year that I would see my teammates, I would still see them for a while so I don’t think it was sadness but definitely, you just didn’t see your friends as much so it was I guess lonelier because a lot of people you see every day, sometimes twice a day, now you might see them once a week or once a month.”

Participant 2 described his feelings in reference to how football impacted the other areas of his life “I felt like the demands in terms of my free time, more so the training aspect of it and actually playing the sport was a lot of preparation in terms of like meetings, it was just taking up a lot of time so, it caused me a lot of trouble.”

Lastly, participant 4 characterized the first few months of his retirement as feeling “confused just like on what I was gunna do with the extra time, maybe a little bit anxious to, just trying to sort things out, those three to four months was really just awkward.”

Emotional Reaction to Being Injured

All four of the former athletes who sustained a career ending injury stated they all experienced some form of negative attitudes towards their injury ranging from depressive-like symptoms to devastation and disappointment.

Participant 5 portrayed a variety of negative emotions as a result of her injury such as, grief, depression-like symptoms, anger and annoyance. “Basically, those emotions, super frustrated, angry ‘cause like what’s happening? Annoyed ‘cause you can’t do anything for yourself.”

Participant 6 recollected “feeling sad, confused, definitely not positive thinking, quite a few negative thoughts of devastation, what am I supposed to do now? I felt like my identity in a sense was gone because I was no longer (name) the athlete, or (name) the rugby player. Like who are you now?”

Participant 7 explained “first in shock then kind of hopeful, because I thought I was gunna recover quickly and be able to play in the tournament coming up then it quickly turned to, just like disappointment, sadness, I started getting angry and taking it out on friends because I was jealous that they could still play and I could feel it was really affecting my friendships and I kind of just secluded myself and became really closed off from everyone because I was just really upset.”

Lastly, participant 8 indicated he felt “sadness, pessimism, a lot of negativity and being lost” because he was unable to finish his athletic career the way he wanted to and the constant change in his surgery date due to the pandemic (COVID-19).

Emotional Reaction to Surgery

The retired athletes’ responses were similar to their emotional reaction to their injury; however, one athlete developed a positive mindset about their surgery.

Participant 5 experienced depression and frustration throughout the recovery process because as she explained “you get injured and then you go to rehab and then you’re like kind of getting better than it’s like okay, now, you had surgery and you’re back at square one and then you’re in so much pain, like can’t get upstairs, can’t carry a plate of food ‘cause I’m on crutches.”

Participant 6 detailed how her injury and circumstances surrounding her injury caused her to develop anxiety that was not present prior to her injury. She elaborated “I was definitely more

anxious and I think more of my anxiety came up because it was my first big surgery where I had to go like under anesthesia so even heading into surgery I was like woah what if they mess up or what if the surgery doesn't go well and then it requires something else so like it was increased anxiety and even after that during the rehab process I'm like okay am I doing something that's gunna hurt it or tear a stitch or something so I developed more anxiety that I didn't have before, just kinda like what am I doing right now to my body, how will that impact me and what does that mean long term? I still almost even have a bit of that, like I get anxious doing certain things because it's like I just really can't afford to like hurt myself again or be injured like that again, so I still carry that a bit now."

Participant 7 developed a positive attitude about her surgery "the surgery was actually a relief because I was in so much pain for so long it was a relief to me that there was gonna be a solution and the problem would be fixed."

Moreover, participant 8 specified "because of COVID it's been pushed back three times in the last two months, they can't find surgeons and rooms and things like that, so it's been annoying to say the least and it kind of broke me down to the point where things, it'll happen, it'll happen, it might not happen, it's not a good idea, this is taking too long."

Negative Affective Behaviours Post-Recovery/Retirement

Two of the respondents expressed experiencing negative emotions during their recovery and retirement process.

Participant 6 mentioned feelings of "emptiness, just like I lost apart of myself a bit, now I kind of have this void especially because rugby took up so much of my life like practicing, team meetings, games, travelling to games, away games and when I wasn't playing, I got all this extra time, so it's like a void, I was angry to because I kept replaying how I could have let this happen

to myself like was I was not paying attention to my body? Was I not tackling properly? Then I was more angry and frustrated at myself, did I put myself in a compromising position? Was it me who caused it or was it just a fluke?" In regard to her future plans "I really just had to think about this plan I had about myself for like the next two or three years had shifted, what do I do now? What do I focus on? What do I do for a career?"

Participant 7 voiced "feeling sad and disappointed, I would celebrate the little progressions I had recovering but overall, I haven't been at the same capacity that I was before physically, so it's been really emotional and bad for me because I know what I am capable of but I'm not there yet."

Improved Psyche

All former athletes from involuntarily retirement indicated through the passage of time their mental health started to improve for a variety of different reasons.

Participant 5 acknowledged that her happiness stemmed from the realization that she was not solely defined by sports, that she had alternative identities to fall back on.

Participant 6 expressed "When I was starting to get better with my rehab, was when I really started to feel more positive every day and there was no longer this, oh my gosh, my world is ending, and honestly, part of it was still being involved with Lettermen and I kind of pushed myself more into the background of sports."

Participant 7 detailed "I'd say, I focused on other things like work, so it makes me happy when I do well there but when I think about my sport, it's still a sad feeling."

Participant 8 mentioned "after a while, it was definitely a lot of positivity, lot of optimism, a lot of motivation drive, ambition, and can't say there was one moment that led to positive thoughts just optimism in my future."

Physical Activity

Physical activity is defined as "bodily movements that is produced by the contraction of skeletal muscle and that subsequentially increases energy expenditure" (Miles, 2007, p. 318). All eight of the retired athletes indicated they participated in some kind of physical exercise throughout their retirement.

During the early stages of his retirement, participant 2 went to gym, ran and played intramural basketball.

Participant 3 detailed "my first year of university when I came back for the summer, I played sports, third year, my friends and I were all doing our own thing like we were working, fourth year, same thing, and for half a year, I worked out with a personal trainer and then that got too expensive which is fine and I stopped and tried doing other things like working out at home, walking the dog and then just got bored of that."

Interestingly, three of the four retirees from voluntary retirement asserted that they saw an overall increase in the amount of time spent exercising sometime throughout the retirement process.

Participant 2 indicated as a result of joining martial arts (Muay Thai and Brazilian Jiu-Jitsu) he saw an increase in both his mental health and frequency in attending classes. "I'd say I'm more active now because my training is on my own time so, I'm also able to work out more consistently because I'm not being forced to work out at specific times."

Participant 3 recollected "it wasn't until 2019 where we (his work) built a new workout gym, I've been consistent where it's either five days, six days or four days a week that I work out and I started feeling good about myself, I started losing some weight, my clothes were a lot bigger so then I just felt really good about myself."

Participant 4 explained after the first three to four months of being inactive he started going to the gym more frequently and consistently or walking his dog multiple times a day.

Participant 1 stated there was a fluctuation and inconsistency in her physical activity levels.

Participant 5 remarked prior to boxing, she had to terminate her participation in running and weightlifting due the pain it caused her knee.

Participant 6 answered she primarily walks her dogs on a daily basis, occasionally plays pick-up basketball as well as recreational swimming.

Participant 7 described "at the beginning post-surgery, I was really motivated to try and be active and keep up on my workouts and everything but then slowly, I just started not being as disciplined to go to gym and there was a lot of other barriers, I moved to a new province, getting used to the new area, the living situation and dealing with the pandemic (COVID-19) so gyms have been closed so I guess those factors weighed in as well and it was more difficult to go to the gym and then it turned into a few days that I missed then into weeks then months and now it's a downward spiral."

Lastly, despite participant 8 not receiving his surgery, he was able to participate in physical exercise such as high intensity interval training (HIIT), yoga, body weight workouts and stretching.

Body Dimensions/Physical Attributes

Three subthemes appeared as a result of body dimensions/physical attributes: muscle tone/mass, fitness levels and weight management.

Muscle Tone/Muscle Mass

All eight respondents mentioned after they retired from their desired sport, they experienced a decrease in both muscle tone and mass.

Participant 1 explained as a result of participating in both summer rugby and going to the gym, she was able to maintain her muscle mass and tone for a short period of time after retirement however, while being inactive she did notice a decrease in both areas.

Participant 2 saw a slight decrease in both muscle tone and mass, however, he rationalized that since he was not exercising as intensely as he was during his active years on the university football team, he was not overly concerned with the loss of muscle.

Participant 4 stated "I would say because I wasn't doing as much cardio, I definitely lost my abdomen, I would have lost about five to 10 pounds of muscle and maybe put on five pounds of fat, pretty well the rest of myself like legs and arms, shoulders and neck, I haven't noticed much muscle tone lost there."

Participant 5 replied "I lost muscle, my leg was like a spaghetti noodle and then more so after surgery I lost a bunch muscle like I lost weight."

Fitness Levels

Cardiovascular fitness is defined as "the physical work capacity of an individual, in the form of amount of oxygen capacity per kilogram of body weight over time (mL/kg/min)" (Voss, 2016, p. 188). The former athletes who voluntarily retired all described a decrease in fitness levels post-retirement however, three of the retired athletes were able to increase their fitness levels through consistent exercise whereas, participant 1 did not. Nonetheless, three of the respondents from involuntarily retirement described either a decrease, maintenance or fluctuation in their fitness levels during retirement.

Participant 1 recalled “they (fitness levels) decreased, I only do cardio for rugby, that’s about it (laughs).”

Participant 2 detailed “I would say my fitness levels increased because I’ve been able to take a more personalized approach to these activities as oppose to having events or just things forced onto me like needing to go to this place by this time, you know, me being able to decide what martial arts classes I go to or what time I wanna workout I think makes it a lot more enjoyable so that makes me want to do it more often cause I know there would be times when I was playing football I would try to get out of morning workout on occasion just because of the fact that I was behind on school or it was just exhausting at times.”

Participant 3 expressed as a result of his inconsistency in physical exercise, “I would find I was much more winded” however, in 2019 when he started exercising consistently, he saw an increase in his fitness levels.

Lastly, participant 4 mentioned “I definitely noticed right off the bat my cardio went down and stuff like that (during the three to four months of being inactive) and now, I always do cardio, every time I go to the gym, I try to do cardio first.”

Participant 5 and 6 described a constant fluctuation in terms of their fitness levels prior to finding a physical activity that would not cause added stress to the body. Participant 6 recalled “I’ve noticed my fitness levels went down because as my right knee was recovering, I obviously couldn’t do as much lower body weight training or anything like that. And specific, to my sport like I am a sprinter at heart and I’ve always been used to a certain physique so kind of being out of the gym at that time too, my body obviously changed, it wasn’t as slim or like I didn’t have the same body that I had when I was actively playing in a sport but even now I will work out a bit but because of the strain on my right knee it’s like, I don’t have the same amount of power.”

Participant 7 was unable to regain her fitness levels due to the inconsistency in maintaining physical exercise.

Alternatively, participant 8 maintained his cardiovascular fitness through actively partaking in high intensity interval training (HIIT), yoga and body weight exercises.

Weight Management

Weight management "refers to a set of practices and behaviours that are necessary to keep one's weight at a healthful level" (Frey, 2021). All participants displayed both similarities and differences when discussing their weight management techniques namely, healthy eating/alternatives, meal prepping and limiting junk food intake.

Participant 1 replied "I did nothing to manage my weight (laughs), went to the gym, played rugby and hoped for the best."

Whereas, participants 2, 3 and 4 all managed their weight through healthy eating, increase water consumption and exercise.

Participant 2 mentioned "I was trying to be I guess healthy through eating and other things and still trying to go to the gym."

Participant 3 described "I just was eating; I'd be really weird with it 'cause I'd be like oh I ate so much crap in a day and I'd think why did I do that? I hate the way I look, I feel like I have a stomach and all that and then I'm like alright, I'm going to change and then I don't so I really had to get in that mindset of alright let's not eat that thing, let's not eat this, let's cut that, let's drink more water, let's do this, let's do that, like before I started working out I was eating fine but then when I started working out, it just helped me lose that much more weight or increase that much more muscle."

Participant 4 voiced " for those three or four months, nothing at all, but then after that just eating healthy, as healthy as I can like there's obviously certain days when that doesn't happen but just being content and always having it as a conscious thought in my head like hey I gotta be active, I gotta be active, I gotta do this stuff just having things to que my memory to get me into thinking about that like you know not stress about it."

Participant 7 described doing intermittent fasting whereas, participant 8 described "I'll meal prep, I'll spend a day meal prepping, I count calories for the week, things like that but I'm not stopping myself form being social or like eating during social gatherings and things like that."

Consequently, participant 5 detailed the effects of her eating disorder (bulimia). "The eating disorder kind of just started in high school like before I was injured but then kinda got worse after 'cause it's like I can't workout, okay, well, I can't eat."

Body Esteem

Body esteem is "the facet of self-concept that has been most consistently associated with weight, and includes the attitudes, evaluations, and feelings an individual holds about his or her own body" (Williams et al., 2013, p. 2). Three subthemes emerged from body esteem: low levels of body-esteem, maintenance or high levels of body-esteem and self-consciousness.

Levels of Body- Esteem

Respondents from both voluntary and involuntary retirement all discussed their perception of body-esteem.

Participant 1 stated " I'd say it (body esteem) got better while playing, I think because I grew to love my body through playing and just like knowing how to work out properly and how that's helping me, maybe, not body image wise but just like for strength wise, I know my thighs

are big but it's because of the power that's within them so it's just like that, the sport helped me realize that the way I look is beneficial for the sport and it helped me with my confidence 100% but I wouldn't say it decreased once I retired."

Participant 2 recounted " I definitely noticed small changes but nothing to the point where I was I guess concerned or was like I gotta get back into the gym, you know what I mean?"

Proceeding to participant 3 working out consistently, he developed an unfavorable perspective about himself as he explained "I was gaining weight, I was not taking care of myself and just like super, super negative right? I was fat, I hated the way I looked and then I kinda just complained so much right and I never tried to look for a solution, if I never stopped playing sports, you know, my clothes wouldn't be too small or I wouldn't have to buy bigger clothes."

Participant 4 experienced a decrease in his body esteem during those months of inactivity "it was more so knowing I wasn't playing sports, staying at home, gaming and just watching movies and the loss of activeness."

Prior to participant 5 career ending injury she maintained a negative perspective about herself.

Whereas, two of the four respondents discussed prior to their injuries, they had little to no negative perceptions about their body-esteem. Both participants recalled feeling confident and possessing a positive attitude about themselves however, during their recovery phase was when they started to notice a change in their self-perceptions. Participant 6 stated "I'm not really trying to put myself in outfits that I was before, just because of a combination of a bit of stress eating; not being able to go to the gym, when you miss a few days or a month of going to the gym

consistently, your body loses that definition, I was used to looking at such an athletic physique and it turned into your fit but not at that caliber or physique anymore."

Participant 7 explained "definitely triggered a lot of emotions, I attributed my happiness a lot with my physical abilities like when I do well at the gym or in sports, that's when I feel happy so the physical changes definitely made me feel depressed and sad, it was just overwhelming that the emotions were negative."

Whereas, participant 8 indicated there was no change in his body-esteem because "there wasn't much of a drop off, it was a manageable amount of drop off and I know the steps needed to get back."

Self-Consciousness

Self-consciousness "refers to characteristics like constant preoccupation with oneself, introspective behaviour, awareness of self-presentation, and concern over the appraisal of others." (Hatzigeorgiadis, 2002, p. 197). The former athletes described both similar and contrasting experiences in regard to their self-consciousness.

Participant 1 expressed "I don't think I became self-conscious after retirement, I think it's because I felt good, also with rugby there's so many different body types, there's big girls, there's small girls, there's tall girls, there's short girls, even in summer rugby you have so many different body types like I have no reason to feel bad about my body when everyone's got a good body here, our bodies are meant for power in this sport and mine is meant for power and bouncing off people so the more cushion, the better."

Participant 2 replied "I would say I was definitely just confident in myself; I was just feeling good in general I guess."

Participant 3 mentioned prior to him becoming consistently active, he was self-conscious and described himself as feeling big.

Participant 4 said “when I was playing sports, I was less conscious about my body, I knew that I was working out and I was stretching and I was doing all this stuff that it had to be good for my body so, I didn’t really think about it, I didn’t think about the negatives that went along with it and now that I’m not playing sports, I’d say I’m more conscious about my body but in a good way, like watching what I’m eating and exercising.”

From pre to post injury, participant 5 and 7 rated their self-consciousness as remaining at a constant decreased level. Participant 7 pointed out “I was self-conscious before my injury and I guess I only started looking at my body more negatively after I got injured, when I compare myself to when I was playing sports to now, I definitely viewed it more negatively and after retirement definitely more body conscious, I started noticing I lost muscle and probably gained a few pounds as well like clothes weren’t fitting the same as they did before probably because of muscle lost too.”

Alternatively, prior to participant 6 injury, she described herself as “I was (name) the athlete or (name) the rugby player, I was proud, I got larger arms and big legs, it was nothing I was worried about but after, I’m not active anymore, I was just hyperaware about my proportion sizes or just how my legs looked.”

Lastly, participant 8 discussed his feelings of self-conscious in regard to being mindful about how much work it will take to get back to his pre-injury physique.

Coping Mechanisms

Coping mechanisms are defined as "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that re-appraised as taxing or exceeding the resources of the person" (Grove et al., 1997, p. 192). Maladaptive coping (ineffective coping) occurs "when the athlete is unable to cope effectively due to a lack of resources or inseparable barriers" (Kuettel et al., 2017, p. 28). Four subthemes have appeared as a result of coping mechanisms techniques: adaptive (positive) coping, physiotherapy, remain a part of the team and maladaptive (negative) coping.

Adaptive Coping Mechanisms

The former athletes primarily used distraction and keeping busy (spending time with friends/family, working, exercising, academia and video games) as a form of coping.

Participant 1 explained "distraction would have been one of coping mechanisms, just not thinking about it, with all the other things I had to do like school and like the clubs and all that, it's just like I didn't think about it, I have other things I gotta focus on, I got midterms coming up, I got projects and assignments."

Participant 2 predominately "focused on working as much as possible, being able to talk to my family more often was nice, maintaining some physical activity was definitely a way of dealing with not playing football anymore, spending more time with my friends like people that I didn't play a sport with, it was nice to just get that different social dynamic."

Participant 3 used a variety of different coping mechanisms, during his first year of university, he used social drinking as a form coping which was done in moderation and not in excess to where it would impact his schooling. Furthermore, he also focused on his academics, played video games and worked throughout the retirement process.

Participant 4 used mindfulness training as a tactic to deal with any negative or intrusive thoughts about himself. He used what he called "**** it moments" which are "moments where you have a thought that you know, that's not necessarily true or has truth to it and like "**** it", just disregard that thought or just move on from it."

Participant 5 and 7 bonded with a family member throughout their retirement which ultimately strengthened their relationship.

Participant 6 actively changed her mind set and primarily focused on her academic career, work, volunteer work and being the president of Lettermen. "I kind of just started to look at everything and especially because I had to plan for graduation, I started to just take that energy and turned it more positive, like what kind of opportunities are out there? What schooling should I take next? I just tried to control the things I could and make the best as possible."

Participate 8 went through numerous trials and errors to determine his next step. "I definitely tried to figure out what else I liked, a lot of jumping around in jobs, a lot of jumping around in courses, online courses and internships."

Physiotherapy

All respondents who involuntarily retired did agree that physiotherapy was highly beneficial to their adaptation into retirement, primary due to the positive results from strengthening their injury, increasing their range of motion, mobility and decreasing the amount of pain experienced.

Participant 6 detailed her experience of finding an adequate physiotherapist "the therapist I had post-surgery was provided by the school and since they were busy managing multiple teams and athletes, it felt like they didn't have time to make my recovery a true priority. The therapists I saw outside of school were more dedicated to taking a full history and developing a

plan for me that fit my current lifestyle and would help bring me back to normal fitness standard. And I still go through bouts of rehab so I'll go see a physiotherapist and just kinda go through some exercises, get it massaged out, some stim, or electroshock, so it's like I still having to take care of it because if I don't, it just impacts my entire day, not even just physically but when my knee swells up, it's a bummer, so my mood kind of goes down a little bit and then like fomo (fear or missing out) sometimes but then it's like okay well my knee hurts so I can't participate in that because I want to make sure that it's not leading to a bigger issue, so, there's definitely an impact there for sure since the surgery happened."

Participant 7 reflected "I went to physiotherapy while I was injured 'cause it took a while from the time I got injured to when I got surgery so I was going regularly to just make sure everything was okay, to keep the mobility up and then post-surgery I did physio for about six weeks and then I moved so, I stopped physio for a couple of months and I just recently started physio again about three weeks ago (summer 2019), I think it would have been a quicker recovery if I continued throughout the last couple of months which is why I started up again because I still don't have the same range of motion that I used to have."

Remain a Part of the Team

Four (two voluntarily and two involuntary) of the eight participants did maintain some form of connectedness with their team post-retirement whereas, the other four former athletes did not.

Participant 1 returned to her former team as an athletic trainer the following year after she graduated, she described her experience as awkward because "you're not in the same role, it was like, I'm doing this now as a profession, so I'm stepping out of that like yes, I'm your friend but I'm not your teammate anymore though I am a part of the team, it's not on the same level. It was

great to see the girls again, but I wasn't as social with them as I was when I was a player, that social contact with them decreased completely 'cause I was only there for practices and games."

Participant 2 stated "I wouldn't say that I was super active in terms of being involved with the team still, but I would still go to the occasional game and I think that occasional game would just kind of keep me like, it was enough I guess to satisfy my interests in terms of still being able to see everything happen and still being able to congratulate everyone afterwards was always great."

Participant 6 explained "it felt great, I felt I was still connected to the sport in that sense, I was doing stuff like prepping snacks for away games, when they went to Brock, I was waiting outside the bus and handed everyone a treat when I got on and I was still a part of team parties, home games I stood on the sidelines or in the stands and I did that more of just self-preservation."

Alternatively, participant 7 and 8 did not remain a part of the team. As participant 7 described "I just kind of felt left out, it's not that I didn't wanna be around, I just didn't feel like it was my place anymore to be there, it felt uncomfortable to go to events like I thought people would be probably wondering why someone that doesn't play anymore is still hanging around." Contrastingly, participant 8 reason for not remaining a part of the team was highly dependent on his coaches, as he indicated "at that moment, it's just business, regardless of how much they cultivated the emotional part of it, you realize at the end it's just business and I definitely kept my foot in the door because I knew there were kids that would need me just like how I was."

Maladaptive Coping Mechanisms

Three of the retired athletes from voluntarily did not use any form of maladaptive coping behaviours or suicide ideations to cope with their athletic retirement. Whereas, three of the former athletes from involuntary retirement at some point throughout their retirement utilized some form of maladaptive coping techniques.

Participant 3 expressed due to various circumstances surrounding his personal life and his athletic career termination such as attempting to help his friend who had a drug addiction, a familial death, negative and intrusive thoughts about himself, weight gain and his athletic retirement caused him to use suicide ideation as a coping method. As he explained "I did get to a point, my breaking point, in my fourth year, where my mental state was really shot and I was heavily contemplating suicide and I almost actually did it but after that it started to improve again, where I'm not in that low point, but I was driving to work when I was working for my dad and where I was working there was like a small bridge and going to work one day, I kind of just parked the car in front of it and I was in my car and I had my foot on the breaks and I had it in drive and then I was like yeah, I'ma just do it because for a while every day I woke up it was just like, oh god, it was like a void you know, you wake up, you felt nothing, you just kind of moved with no emotions, you just went on with your day, you wake up, went to bed, wake up, went to bed, and I just felt like I was going along with everything, I didn't feel real, I didn't feel right, so, the day I was looking out at the water, and I was really just, I was ready to just shove my foot off the breaks and hit the gas and drive in and drown myself, but what brought me out of it was the simple fact that, I thought about what it would do to my friends and my family and my girlfriend, when someone commits suicide, physically you stop the pain and you stop the hurting but emotionally you pass it on to everyone else, I had a good family, I had friends, I had a girlfriend

like ideally I wouldn't be in that situation one would think right and I just sat there for a few minutes and I thought to myself if I did this what's it going do to my family, what's it going do to my girlfriend, what's it going to do to my friends because I couldn't bear, I guess, if you will that feeling or responsibility so, I just reversed my car out and went to work."

Prior to participant 5 injury she had an eating disorder (bulimia) which was further reinforced by her career ending injury as well as she started smoking cigarettes as a form of stress relief.

Participant 6 recalled early on during her retirement she used emotional eating as a form of coping, as she explained "It was kind of just like let me have these snacks, or let me indulge in these foods I couldn't when I was training, I was like okay, I don't have a game, I'm gunna go to McDonalds and get like two meals and ice cream."

Lastly, participant 8 started smoking marijuana as he expressed "I didn't mind getting away for a second but didn't want to do that forever."

Social Support

Social support is defined as "an exchange of resources between two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient." (Zimet et al., 1988, p. 31). Two subthemes emerged from social support: positive and negative forms of social support.

Positive Forms of Social Support

Primary and secondary forms of social support were predominately offered to the former athletes by their friends, parents, significant others, teammates/roommates, athletic trainers or mentor.

Participant 1 explained “there were a few others on the team that were going through it with me, I talked to them, I talked to my roommates a bunch, friends on other sports team that were also gunna be graduating that year, kind of going through it with somebody else was definitely helpful that you know that you’re not alone.”

Participant 2 stated his mother was his primary source of social support “she made sure it was a decision I was comfortable with and she always told me that no matter what my decision was, she wasn’t gunna think differently of me, she wanted me to be successful in football but ultimately she just wanted me to be successful in whatever I had aspired to do, I think that definitely helped a lot when kind of changing gears and focusing on different things.”

Participant 3 recalled “primary probably my parents and girlfriend and secondary my friends. My parents, they visited me when I was in university or they called me, checked on me, see how things were going and my girlfriend, talked to me, checked up on me pretty much. My friends, being able to hang out with them whenever I came home from university, get together, house parties, relax, hang out with them.”

Participant 4 said “I had my girlfriend. My friends were all in the same boat, they don’t play sports anymore and things like that, it was good emotionally and just yeah, I guess, the emotion part would have been, would have been the big take away from it.”

Participant 5 and 6 social support was offered by their high school and city league coaches who provided them with emotional support whereas, their friends, teammates and significant others provided them with emotional, informational and physical support. In addition, participant 6 stated her mentor was a key part in her success. As she explained “I kind of went to him about everything because he was a past rugby player who went through the same thing of

just an earlier retirement, he gave me guidance and I had deep conversations that were therapeutic to me because it was nice to talk to someone who knew where I was coming from."

Participant 7 described "I had my friends outside of sports like we did other things together that I wouldn't do with my friends that I played my sport with, I guess it was comforting having those other friends and different experiences with them and different things that bonded us."

Participant 8 detailed "I had support, I had roommates, we were all going through the same thing and community definitely helped me regardless if they were going through what I was going through mentally, just being around them and either hearing like having those moments where we talked about football but at the same time not every conversation would be about it, so it was definitely healthy to have conversations outside of football, talking about where we are all moving afterwards, what our aspirations are outside of football so that was definitely positive."

Negative Forms of Social Support

Seven retired athletes from voluntary and involuntary retirement shared a lack of social support from their coaches and/or athletic trainers as well as believed seeking the help of a therapist was ineffective. Participant 1 felt that because there was a lack of connectedness with her new coach during her final season, she was unable to form a relationship to point where she thought her coach could offer her any type of support.

Neither one of participant 2 coaches or athletic trainers offered him any sort of support post-athletic career, as he explained "at times, you feel like you would like for someone to kind of reach out but I also realized that at the same time you know, that's not really how the football

team works for the most part so I was prepared to kind of push on regardless of not having been asked how I was dealing with anything."

Participant 3 stated "it didn't bug me at all, it kind of came and went you know, sports are done and I was moving on with my life, if I saw them, every so often like oh, hey, how's it going but nothing like oh man, I wish he'd talk to me."

Participant 4 recalled "I wouldn't say I had the best relationship with my last coach, we didn't dislike each other but when you stop playing for them, they kind of feel betrayed, they don't hate you for it but it changes the dynamic like I wouldn't want to go talk to them because it would be uncomfortable."

Participant 5 indicated "I went to a counselor at one point but I didn't find it helpful because I don't like talking to people like I'm sure it's great for some people but it just made me more anxious"

Participant 6 expressed as a result of her university coaches primary focus on the team's successes, they dismissed her after it was confirmed that she would no longer be able to play.

Participant 7 replied "it was disappointing, I wasn't too close with my coach in my later years 'cause we got a new coach my senior year so I wasn't too surprised but it was disappointing." In regard to her athletic trainer she described "once you leave the sport, I feel like you just kind of get dropped and I probably felt the same sort of feeling like disappointed but not surprised."

Participant 8 indicated "not to say, I expected it but I didn't expect anything from them (coaches) either, they weren't good coaches off the field so I wouldn't want to talk to them and I doubt they'd want to talk to many of us off the field and it was just a matter of learning to be okay with that, which didn't take long."

Themes from Involuntary Retirement

Rediscovery

The term rediscovery can be applied to how the former athletes progressed from their injury into retirement throughout the different avenues of their live such as exploration of work, maintenance of friendships/teammates, new social circle, academia or development of new identities.

Two of the former athletes indicated that their rediscovery took place throughout their university (during or end) career, whereas, one participant did not experience rediscovery and another participant was in the midst of redefining themselves.

Participant 5 stated there was a lack of social and recreational exploration upon starting university.

As a result of participant 6 sustaining her career ending injury during her academic career, she was able to explore other social groups, participate in different volunteer clubs as well as preserve her friendships with her former teammates.

Participant 7 explained “I would say it’s affecting my friend group, my friends before were mostly my teammates and that’s what we had in common so right now I’d say I’m still in the process of redefining myself after my injury. And I still have the same goals job wise, before the injury I wanted to be a police officer and I’m still working towards that goal.”

Participant 8 reflected “I rediscovered myself in a sense and I’d say there are five people I would keep in contact with on a regular basis. Also, I was at the end of my academic career, so I wasn’t focused on school, more so on my professional career afterwards and I ended up getting involved in tech and then subsequentially sales for a software company.”

Body Dimensions/Physical Attributes

Four subthemes emerged as a result of physical attributes: physical limitations, muscle tone/mass, fitness levels and weight management.

Physical Limitations

Functional limitations are the "limitations in completing actions that individuals would normally be able to complete (Russell et al., 2018, p. 312). Impairments are defined as "at the site of injury and are primarily physical such as pain, decreased range of motion, decreased function, and instability" (Russell et al., 2018, p. 309).

All respondents experienced both short- and long-term physical limitations and impairments as a result of their injury and surgery. Prior to their surgery, participants 5, 6 and 7 discussed the short-term effects of their knee injuries namely, the inability to walk, physical restrictions due to wearing a knee brace while they were injured and post-surgery, difficulty putting pressure on their leg as well as limited range of motion.

The long-term effects of their injury were comparable for the three retired athletes as they continue to experience aches and pains despite having a successful surgery.

Participate 5 explained regardless of undergoing surgery seven years ago, she still cannot bend her knee past 90 degrees and she continues to encounter physical impairments today.

Participant 6 discussed the physical implications of not wearing a knee brace "if I walk for too long and I'm not wearing shoes that support my knee, my knee will swell up a little bit so now I have to think about all the activities that I do, even if I wanna take the dogs somewhere, am I wearing the right shoes? Should I put on my knee brace to be safe?"

Participant 7 indicated "six months after surgery I wasn't able to run, lift heavy weights or anything so right now, I'm working towards doing that again but I'm still facing limitations."

Lastly, participant 8 physical restrictions stemmed from not undergoing surgery. During the past two years since his initial injury, he had to terminate his labor job because he could no longer meet the physical demands of the job. More specifically, he stated that continuous or repetitive movements caused him physical discomfort.

Mind and Body Dualism

Mind and body dualism is the concept of how the athlete's psychological state interacts with their physiological state.

Participants 6, 7 and 8 all recounted their thought process in returning to play and/or how it psychologically affected them.

Participant 6 gave a detailed report mind and body dualism and mental toughness. "After I actually sustained the knee injury, I was still trying to work with an athletic therapist on a tape job, I'm like hey I can't turn right but can you tape my knee in this position where I can play through it? And I did that for a little bit with practicing and that probably made my injury honestly worse and needing surgery because I was trying to suck it up, growing up especially playing rugby, basketball or track, it was always taught like no, you're good, shake it off, keep playing but then actually I kept playing and my body was literally just screaming at me, like you are in pain, my knee would be swollen just walking around, I became so physically uncomfortable that I had to tell myself, you can't play through it anymore."

Participant 7 expressed feelings of betrayed and helplessness by her body as she recounted "normally you're in control of what pain you can and cannot handle but when someone, when a doctor tells you, you're going to need surgery to have your injury fixed, you know, you are not in control anymore."

Participant 8 detailed “that was probably one of my lower points, lower points where you’re forcing it and your body knows it’s not happening and the performance that’s not happening, so it was definitely one of those rare moments of actual mental defeat. I’ve lost games before, but I haven’t actually been mentally defeated.”

Conclusion

In conclusion, the results from the participants interviews demonstrated an overlap between the different themes and subthemes. More specifically, physical attributes (muscle mass/tone, fitness levels, weight management) and physical activity impacted the former athletes’ body-esteem. For example, depending on the amount of muscle mass/tone lost, fat mass gained and whether or not there was a decrease in fitness levels would determine if the retired athlete possessed a positive or negative perspective about themselves. As shown, the retired athletes who described a decrease in body dimensions/physical attributes and physical activity saw a decrease in body-esteem, increase in mood disturbances and decrease in mental health. Furthermore, the participants who described an absence of their athletic identity as negative were more likely to experience mood disturbances than their counterpart who wanted to disengage from the athletic role.

In addition, numerous themes and subthemes from the involuntary retirement interviews has demonstrated a correlational relationship. For instance, despite the strength of the athlete’s identity, they experienced some form of negative affective behaviours however, the differences stemmed from the intensity and severity of their emotional reaction. Athletes who strongly identified with the athletic role reported an increase in mood disturbances than their counterpart who weakly identified with their athletic role. In reference to the former athletes’ mental health, results demonstrated retirees improved psychological state primarily stemmed from their

progression at physiotherapy, detaching from their athletic identity, rediscovery (new friends, job opportunities, new social groups) and optimism about their future.

An association emerged between physical discomfort/restrictions and severity of mood disturbances. Participants also expressed frustration and disappointment upon the termination of certain physical exercises or activities because their bodies were unable to successfully perform the task. However, once they were able to find an alternative activity that would not cause added stress to their bodies, their mental health increased. Lastly, two of the four retired athlete's body esteem decreased post-athletic career further causing an increase in self-consciousness or dissatisfaction with their physical appearance.

A positive correlational relationship between mind and body dualism and mood disturbances has demonstrated when the former athletes were unable to successfully perform the physical tasks or perform to the same caliber prior to their injury caused an increase in negative emotions (feelings of betrayal, frustration and disappointment).

Lastly, depending on the type of coping mechanisms utilized and social support available throughout the transitional process would significantly impact the retirees mental state. Results yielded athletes who used adaptive coping mechanisms received emotional and informational support were more likely to experience a decrease in mood disturbances and an increase in positive affective behaviours.

Interestingly, both types of retirements (voluntary and involuntary) also demonstrated a variety of similarities in how the former athletes interpreted their adaptation. Namely, identity (weak athletic identity, absence of athletic identity and public identity), mental health and mood disturbances, physical activity, physical attributes (muscle mass/muscle tone, fitness levels and weight management), body-esteem (decreased and maintenance of body-esteem and self-

consciousness), coping (adaptive, remain a part of the team and maladaptive) mechanisms and social support (adaptive and maladaptive).

All participants from voluntary retirement and one participant from involuntary retirement reported possessing a weak athletic identity during their active years of competitive sport. As a result of having a weak athletic identity, the five participants described themselves as possessing multiple social identities as well as experienced less severe mood disturbances than their counterpart who strongly identified with the athletic role and who suffered a career ending injury.

In addition, both retirement groups mentioned experiencing positive and negative feelings towards losing their athletic identity. Two participants from voluntary retirement discussed missing the sport, feelings of loss, sadness and confusion. Whereas, all participants from involuntary retirement primary experienced depression-like symptoms, identity loss, decreased mental health, anger, sadness and frustration. Few of the respondents from voluntary retirement and one participant from involuntary retirement indicated experiencing positive affective behaviours (happiness, feeling free and less confined) post-athletic career.

Voluntary retirement participants described fewer and less severe negative emotions such as sadness or confusion. For instance, participants who were forced into retirement experienced negative emotions that included however, not limited to depressive-like symptoms, devastation, disappointment, anger, grief, annoyance or emptiness. Moreover, through the passage of time, participants from involuntary retirement saw an increase in their mental health whereas, participants from voluntary retirement expressed less severe negative affective behaviours also saw an increase in their mental health soon after their retirement.

Similarly, despite the amount of time, it took for the former athletes to participate in physical activity respondents from both voluntary and involuntary retirement did participate in some sort of physical activity/exercise (gym, martial arts, walking the dogs etc.). However, one participant from either group reported their physical activity levels did fluctuate throughout their retirement and ultimately, they both stopped exercising in general for contrasting reasons.

In the case of physical attributes, participants in both retirement groups discussed losing muscle mass/tone and experienced a decrease in fitness levels for different reasons. As a result of their injury and surgery, former athletes saw a decrease in muscle mass/tone and fitness levels. Whereas, participants who voluntary retired saw a decrease in both muscle mass/tone and fitness levels primarily due to inactivity. Furthermore, both retirement groups used similar weight management techniques such as healthy eating/healthy alternatives and exercise.

In regard to, body-esteem both groups discussed experiencing positive and negative ideals about themselves which either caused a decrease or maintenance in body-esteem and self-consciousness.

In addition, the former athletes from voluntary and involuntary retirement utilized similar coping mechanisms such as distraction, keeping busy (work, exercise, friends, school) as well as social exploration and mindfulness. Half of the participants in either group did not remain a part of the team versus, their counterpart who did to maintain some form of closeness with their team. Moreover, both groups were offered support from their significant others, friends, teammates and coaches who provided them with either emotional support, physical support or both.

Lastly, three participants, one from voluntary and two from involuntary retirement utilized maladaptive forms of coping mechanism such as suicide ideation, eating disorder, smoking (cigarettes or marijuana) and emotional eating to cope with their athletic retirement.

Similarly, both groups experienced maladaptive forms of social support which was not offered by their coaches or athletic trainers.

CHAPTER FIVE: DISCUSSION

The purpose of this study was to investigate and understand the affective, behavioural, cognitive, athletic and non-athletic factors of the psychosocial effects of athletic retirement in elite and competitive athletes. A quantitative (n=50) study was administered to analyze the associations between identity, mental health, mood disturbances, physical attributes, body dimensions, financial consequences, physical activity, coping mechanisms and social support of normative and non-normative retirement in former competitive and elite athletes. Additionally, interviews (n=8) were conducted to further explore the quantitative data in detail to gain a greater comprehension of psychological, social, physiological and financial consequences of athletic retirement.

Part 1: Quantitative Analyses

The first objective was to examine the main effects of mental health, mood disturbances and coping mechanisms in voluntary and involuntary retirement. It was hypothesized, based on prior research (Muscat, 2004; Caron et al., 2013; Arvinen-Barrow et al., 2017) that involuntary retirement increased the likelihood of experiencing a decrease in mental health, increase in mood disturbances and increased the likelihood of utilizing maladaptive forms of coping techniques. Evidence was partly supported for the following hypothesis; however, it is worth mentioning, results from the quantitative and qualitative data yielded different findings in regard to mental health and coping mechanisms. For example, quantitative data revealed retirees who were forced into retirement through injury reported higher levels of mood disturbances than their counterparts. Whereas, findings were non-significant in regard to mental health and coping

mechanisms utilized between voluntary and involuntary retirement. In reference to the qualitative data, findings were supported in terms of retirees who suffered from a career ending injury experienced more severe and intense negative affective behaviours (depression, anxiety, grief, anger etc.) which ultimately negatively impacted their mental health as well as utilization of maladaptive forms of coping.

The second objective of this study was to quantitatively examine the main effects of change in body-esteem (body shape, weight appearance and muscularity) during retirement in voluntary and involuntary retirement. It was hypothesized that during athletic retirement, former athlete's body perception (muscle mass/tone, fitness levels, body weight, shape etc.) would decrease as a result of a decrease in physical activity. Findings from the study supported this hypothesis. Results yielded participants from both retirement groups scored high on body shape (perceived body shape as fat) and body weight (viewed their body weight as being high), low on muscularity (believed their muscle mass to be low) and moderate scores determined participants held a neutral perspective about themselves in regard to their appearance. Past research has reported retirement has been linked to weight gain, decreased muscle mass (Plateau et al., 2017), disordered eating, weight fluctuations (Stokowaski et al., 2019) and body image issues (Stephan et al., 2007; Stokowaski et al., 2019). Stephan et al. (2007) examined the perception of bodily changes post-athletic career (voluntary and involuntary retirement) in 69 former elite male and female athletes. Researchers found body perceptions were negatively correlated to global self-esteem, physical-worth, perception physical condition, sports competence and bodily attractiveness however, there was no relation between body perception and physical strength. Additionally, the relationship between the body and global self-esteem was not significant when physical self-worth was considered.

The third objective of this study was to investigate the exploratory analysis of the effects of mental health, mood disturbances and coping mechanisms on strength of athletic identity. It was hypothesized that former athletes who sustained a career ending injury and strongly identified with the athletic role were at an increased risk of experiencing an increase in mood disturbances, decrease in mental health and an increase in the utilization of maladaptive coping mechanisms. Results were partially supported, findings demonstrated participants who strongly identified with the athletic role showed higher levels of mood disturbances than their counterpart who weakly identified with the athletic role.

Part 2: Qualitative Analyses

Qualitative analyses was implemented to examine the lived experiences of voluntary and involuntary retirement on mental health, levels of mood disturbances, absence of athletic identity and coping mechanisms used during athletic retirement as well as the effects of mind and body dualism on injured athletes. Thus, the purpose of the qualitative research was to thoroughly and extensively investigate and comprehend the subjective experiences of voluntary and involuntary retirement. According to the present research, qualitative results were supported in regard to retirees who weakly identified with the athletic role reported higher levels of mental health, lower levels of mood disturbances and were less likely to utilize maladaptive forms of coping techniques. Whereas, participants who experienced non-normative retirement experienced higher levels of mood disturbances (depression, anger, frustrations, disappointment), identity foreclosure/unidimensional, identity loss, increase in emotional distress due to absence of their athletic identity, frustrations as a result of mind and body dualism and physical restrictions/limitations. In addition, participants who sustained a career ending injury discussed

partaking in smoking (cigarettes or marijuana), emotional eating or disordered eating (bulimia) as a form coping.

Past literature has reported involuntary retirees are highly susceptible to the utilization of maladaptive coping techniques such as denial (Grove et al., 1997), withdrawing from sports or attempted to remain unaffected by their career ending injury, did not plan for the future (Muscat, 2004), suicidal thoughts, attempt or suicide (Muscat, 2004, Caron et al., 2013; Smith and Milliner, 1994), gambling (Lim et al., 2017), restrictive eating (Putukian, 2015), avoidance coping (Arvinen-Barrow et al., 2017), substance misuse or disordered eating (Gervis et al., 2019). Furthermore, they are also at risk of experiencing a multitude of negative affective behaviours such as frustrations, anger, irritability, tension, hostility, fatigue, confusion (Crossman, 1997) as well as higher levels of depression and anxiety (Leddy et al., 1994; Chan and Grossman, 1988; Smith et al., 1993, Walker et al., 2007).

Based on the Conceptual Model of Adaptation to Career Transition (Taylor and Ogilvie, 1994), related factors were categorized into three themes, social identity, athletic identity and tertiary factors. Qualitative data yielded participants from the current study who sustained a career ending injury and strongly identified with the athletic role were more likely to experience identity foreclosure and maintained a unidimensional identity. The former (one voluntary and three involuntary) athletes also discussed the reinforcement of their athletic identity by their peers and teammates which ultimately enhanced their social and self-identity as an athlete.

Furthermore, in the current study, tertiary factors consisted of strength of athletic identity, mood disturbances/mental health, physical exercise, physical attributes, body-esteem and financial consequences. Findings revealed retirees who sustained a career ending injury were more likely to experience psychological distresses (anger, frustration, disappointment, annoyance

etc.) as a result of their injury, recovery period from surgery as well as persistent aches and pains. In addition, the majority of participants from both retirement groups displayed a decrease in physical activity early on during their retirement as well as displayed lower scores body-esteem levels.

Lastly, whether or not the retirees received a financial wage from sports, they were susceptible to financial hardships post-athletic career, findings included however not limited to, challenges in finding a job, limited savings, inability to work due to their injury, debt or homelessness.

Available resources were divided into three categories, pre-retirement planning, social support and coping mechanisms. Participants who voluntarily retired were more likely to have developed a retirement plan (seeking advice) than their counterpart who unexpectedly retired. Participants from both retirement groups primarily used distraction, working, exercising, volunteer work, spending time with others or remained a part of the team as adaptive forms of coping and physiotherapy for the injured athletes. Alternatively, three participants (one from voluntary and two from involuntary) used maladaptive forms of coping techniques. In regard to social support, both retirement types were offered emotional, moral and informational support from friends, family, significant others, teammates/roommates as well as physical support for the injured athletes. Additionally, the majority of the retirees experienced little to no support from their coaches/athletic trainers during retirement or while injured. The fourth factor, quality of adaptation yielded different results for both retirement types. Information from the study suggested that normative participants experienced a healthy/successful career transition than their counterpart. However, it is worth mentioning through the passage of time, the former athletes who sustained a career ending injury were able to experience a healthy transition through

adaptive coping, positive forms of social support, development of new social identities and the exploration of life beyond athletics. The fifth factor, intervention and treatment for athletic retirement difficulties did not apply to seven of the eight retirees as they did not seek out the assistance from a psychologist or mental performance consultant. However, participant 5 stated despite going to therapy, it was ultimately ineffective.

Moreover, the psychological reactions from respondents in the present study who suffered from a career ending injury mimicked those of Kübler-Ross (1969) stages of death. By contrast, none of the participants from voluntary retirement experienced the stages of death as well as none of the participants from involuntary retirement showed signs of bargaining. During stage one (denial and isolation) two former athletes explained their initial reaction to the onset of their injury. Participant 6 stated “I just couldn’t accept it right away, I was like there is no way, like this is not an injury I’m having right now, I can’t be in that much pain. I was trying to talk myself out of that, I knew it was a bad injury so the best way to sum it up, I just really didn’t want to accept it”. In stage two (anger) retirees described feelings of frustrations and anger as a result of their injury as well as the physical constraints due to surgery and post-surgery limitations. Participant 6 became angry and blamed herself for her injury, as to whether or not her injury was a fluke accident or if she did something to cause the injury. Alternatively, participant 7 detailed due to her growing jealously over her teammates and their ability to continue to compete, she became angry with them which ultimately caused her to isolate herself from the team. Subsequently, all participants described feelings of depression/depressive-like symptoms, sadness, pessimism, devastation and disappointment regarding their injury, circumstances surrounding recovery and the retirement process. Lastly, none of the retirees explicitly stated they had accepted their injury or circumstances regarding their athletic career

termination however, it was through their changed behaviour (new social identities, exploration of various avenues of life, positive thinking and mindset) that lead to the success in transitioning into retirement.

The final objective of this study was to qualitatively assess how mind and body dualism affected the athlete's psychological state throughout the transition into athletic retirement injured athletes. Three participants who sustained a career ending injury recalled feelings of helplessness, betrayal that their body was unable to perform athletically, and mental defeat when attempting to practice/compete while being physically incapacitated. Cosh et al. (2013) collected 250 articles that detailed the retirement (age, injury or other reasons) of high-profile athletes from the Australian newspaper. Athletes who retired as a result of an injury reflected the individual's body, their inability to compete and the connection with the mind. The researcher reported athletes typically expressed "wishing to continue playing and having the mental ability to do so but was unable to continue due to their fallible bodies" (p.93) further causing the retiree to experience sadness and misfortune. One participant mentioned "my body is just not ready to go, I will never not want to play the game, that will remain with me for the rest of my life, but I just can't trust my body anymore" after his hamstring injury. Whereas, another athlete stated, "I have got no idea what my body will do and my decision was made because of my limitations and lack of confidence in my body."

Past literature has determined participants who are forced into retirement through injury are more likely to experience greater challenges during the adaptation process into retirement while possessing a strong athletic identity (Stoltenburg et al., 2012; Webb et al., 1998). Namely, significantly greater emotional and social adjustments (Baillie and Danish, 1992; Kaul, 2017), lack of self-exploration, social isolation, delays in career maturity (Martin et al., 2014), lower

self-control as well as lower self-respect (Cecić- Erpič et al., 2004), vulnerable to experiencing somatic complaints such as insomnia, loss of appetite, upset stomach (Weiss and Troxel, 1986), lower total and physical self-esteem (Leddy et al., 1994), lower levels of life satisfaction (Kleiber et al., 1987; Kleiber and Broke, 1992), feelings of loss such as status, playing time, fitness level, attention from coaches, teammates and media (Crossman, 1997), identity loss (Crossman, 1997; Lake, 2016), lack of retirement planning (Wolanin et al., 2015; Kaul, 2017; Wippert & Wippert, 2010; Cecić- Erpič et al., 2004; Sanders & Stevinson, 2017).

Similarities Between Retirement Types

It is also worth noting seven themes emerged in the qualitative interviews as similarities between both retirement groups throughout the present investigation, namely, weak athletic identity, public identity, mood disorder, coping mechanisms, social support, physical activity levels and perceptions of body-esteem. Firstly, all four respondents from voluntary retirement and one participant from involuntary retirement discussed the benefits of possessing a weak athletic identity. For example, retirees who possessed multiple social identities, experienced fewer mood disturbances and were able to successfully transition into retirement. Secondly, none of the participants from either retirement group reported being diagnosed with a mood disorder. Retirees who involuntary retired discussed experiencing a multitude of negative emotions such as, depression, sadness, annoyance etc. however, none of the participants sought the help of a psychologist or psychiatrist to determine if they ever suffered from a mood disorder. Past research has confirmed retirees who sustained from career ending injuries are highly prone to negative affective behaviours ranging from depressive-like symptoms, grief, anger, frustrations etc. however, there has been no studies that have explicitly examined the relationship between involuntary retirement and the clinical diagnosis of a mood disorder. Thirdly, retirees utilized

both adaptative (social support, distraction, spending time with friends/family, exercising, remain a part of the team etc.) and maladaptive (substance use, disordered eating, emotional eating and suicide ideation) coping techniques. Fourthly, interviewees also displayed decreased levels of physical appearance, increased negative perceptions about their body shape, body weight and believed to possess low levels of muscularity. Lastly, retirees also recalled experiencing a change or maintenance in their body-esteem levels and self-consciousness levels. Prior to their athletic retirement, two voluntary and two involuntary retirees mentioned they did not experience any form of body image concerns however, post-athletic retirement, the former athletes saw an increase in worries regarding their physicality. Three (one voluntary and two involuntary) respondents indicated there were no changes in their levels of body-esteem post-athletic career. Both male participants (one voluntary and one involuntary) maintained high levels of physical confidence whereas, one retiree from involuntary retirement retained a negative perspective about herself. In regard to self-consciousness, five categories arose. Two (voluntary) participants did not experience any sort of self-consciousness post-athletic career because they were physically confident and felt good about themselves; one (voluntary) retiree became self-conscious; two (one voluntary and one involuntary) respondents became positively self-aware to consciously eat healthy and to exercise. Alternatively, two (involuntary) retirees maintained their negative sense of self-conscious from pre to post-athletic career whereas, one (involuntary) former athlete became hyperaware of her body proposition size post-athletic career.

Strengths

There are numerous strengths in the current thesis. Specifically, it is one of few studies that used a quantitative approach to investigate athletic retirement (Cecić- Erpič et al., 2004; Ristolainen et al., 2012). Secondly, the mixed method study allowed for an in-depth

comprehension of the subjective lived experience of the psychosocial effects of athletic retirement in elite and competitive athletes. The quantitative and qualitative research examined various circumstances during the athletic transition that has not been extensively investigated. For instance, the changed perception about the retiree's physicality (body weight, body shape, appearance and muscularity), body esteem levels, physical activity (frequency, duration, intensity) and weight management techniques from pre to post-retirement. Moreover, an examination of one's psyche was crucial in determining what specific factors attributed to a successfulness or unsuccessfulness of their transition as well as what factors caused the former athletes the most significant psychological distress. Lastly, there has been a scant amount of research on mind and body dualism in the athletic literature, thus, the present study is one of very few that assessed the interaction between mind and body dualism as a result of their injury.

Limitations

One limitation from the current study was that a smaller sample size was utilized despite an active attempt to recruit the initial number of participants. As a consequence of COVID-19 there were multiple closures throughout the province of British Columbia (universities, gyms, athletic clubs/complexes etc.) which limited the recruitment area, thus, a Canada wide recruitment was implemented to obtain participants. Due to the decrease in the number of projected participants, the study was underpowered to detect effect sizes below the medium range (Cohen, 1992). A subtle, yet clinically significant differences would not have been identified. However, it is worth noting that despite the decrease in the sample size, I did find some statistical significance in several of the hypothesized outcomes.

In terms of the study design (quantitative and qualitative data), there was a potential for participants to inaccurately recall their experience adapting to the retirement process. For

example, three (voluntary) and two (involuntary) participants retired more than 10 years ago and two (involuntary) former athletes retired more than 25 years ago therefore, increasing the probability of recall bias. Notably, they may remember the circumstances in one of three accounts, 1) the experience was more traumatic than it actually was, 2) not as traumatic than it actually was or 3) they may correctly recall their adaptation into retirement. Beckett et al. (2001) described three ways which memory recall can be problematic, 1) "events can be forgotten or omitted, 2) retrieval failure occurs if recalling of an event is not rehearsed and lastly, events can be omitted through the inaccurate reconstruction of a memory" (p. 595). However, the most common and consistent recall error in "empirical research is the time since the event has occurred" (Beckett et al., 2001, p. 596). Ebbinghaus (1964) found the level of forgetting was highest immediately after an event had occurred, then fell off and overtime plateaued as well as depending on the severity or intensity of the event itself would determine the rate of decline in the individual's ability to recall the situation.

Lastly, sampling characteristics may have also impacted the generalizability of the study. For example, due to the majority of former athletes being predominately from a student population/ competitive background with a handful of retirees who competed at the elite level, limits the findings generalizability to retired athletes. Moreover, the questionnaire and interview may be perceived as taxing or time consuming as well as I cannot verify the findings of the interview.

Practicality

This study can be utilized to help researchers, retired athletes/soon to be retired athletes, mental performance consultant, psychologist or athletic personnel to understand the wide range of psychosocial effects that have not been extensively researched. For example, additional

factors that can impact the adaptation process are changes in body-esteem, physical attributes, levels of physical activity participation, weight management techniques, mind and body dualism and the absence of the athletic identity. Lastly, the type of coping mechanisms and resources available to the individual can help determine the type of retirement the retiree will experience.

Future Research

Future research should seek to explore how former athletes interpret and cope with the various transitional demands through the help of a therapist or sports psychologist. It was reported in the present study, seven of the eight participants did not go to therapy whereas, one participant did however, found it to be ineffective. Alternatively, past research has determined the positive effects of attending therapy. In addition, research should also examine the effects of mood disorders in former athletes who have sustained a career ending injury. Based on the present data, non-normative retirement can cause a multitude of psychological distresses ranging from depression/depression-like symptoms, anger, sadness, annoyance to frustrations. Thus, due to the increased probability of former athletes developing a mood disorder, an assessment of the effects can aid former athletes in becoming aware of symptoms and how they can cope with it.

Furthermore, research should also aim to assess the effects of body dimensions in retired athletes prior to and during the retirement process. Results yielded throughout the passage of time retirees' mental health began to increase as they discovered an alternative physical activity to participate in and actively take part in said activity. Therefore, it would be beneficial for future research to assess at the different stages of retirement the various reasons why the former athlete's perception about their bodies changed, what caused the change in perception, how it affected their overall psyche and were they able to change their body-esteem perceptions

Lastly, a longitudinal study should be conducted on former athletes who have sustained a career ending injury and how they emotionally and psychologically interpreted their physical limitations throughout the retirement process and to present day. For example, what were the highs and low points of experiencing those physical constraints, at what moment in their recovery did they think they would not be able to overcome those physical challenges caused by their injury or surgery or how did they know they could overcome such limitations. I believe by understanding the psychological difficulties the former athletes experienced as a result of the physical limitations, can help future athletes overcome any emotional challenges their injury has caused them.

Conclusion

In sum, both voluntary and involuntary retirement are exposed to the various athletic and non-athletic transitional demands of retirement. However, what sets them apart from a healthy or crisis transition is the cause of retirement and the severity of the psychosocial effects experienced. Current results from both qualitative and quantitative data found participants who sustained a career ending injury were highly prone to psychological distresses (depressive-like symptoms/depression, anxiety, frustrations, grief etc.), identity loss/confusion, difficulty transitioning without their athletic identity, frustrations regarding their physical ability/exercise capabilities and the challenges caused as a result of mind and body dualism than their counterpart. Findings were supported in regard to retirees who suffered from a career ending injury were more likely to experience greater psychological challenges. Secondly, quantitative results supported retirees who voluntarily and involuntarily retired possessed a negative perception about their body shape, weight and muscularity.

Thirdly, qualitative data supported former athletes who maintained a weak athletic identity and voluntarily retired were more likely to experience a healthy transition (less severe mood disturbances and utilization of maladaptive coping techniques). Fourthly, results were also supported for those who were forced into retirement through injury recalled experiencing negative affective behaviours towards losing and detaching oneself from their athletic identity. Lastly, the current findigns supported participants who endured the detrimental effects of mind and body dualism recalled negative emotional reactions.

CHAPTER SIX: REFERENCES

Agnew, D., & Drummond, M. (2014). Always a footballer? The reconstruction of masculine identity following retirement from elite Australian football. *Qualitative Research in Sport, Exercise and Health*, *7*(1), 68–87. doi: 10.1080/2159676x.2014.88858

Albion, Majella J. (2007) *Restoring the balance: women's experiences of retiring from elite sport.* In: 2007 International Women's Conference: Education, Employment and Everything... theTriple Layers of a Woman's Life, 26-29 Sep 2007, Toowoomba, Australia.

Alfermann, D., Stambulova, N., & Zemaityte, A. (2004). Reactions to sport career termination: a cross-national comparison of German, Lithuanian, and Russian athletes. *Psychology of Sport and Exercise*, *5*(1), 61–75. https://doi.org/10.1016/s1469-0292(02)00050-x

Angold A, Costello EJ. Mood and Feelings Questionnaire (MFQ) Durham: Developmental Epidemiology Program, Duke University; 1987

Arvinen-Barrow, M., Hurley, D., & Ruiz, M. C. (2017). Transitioning Out of Professional Sport: The Psychosocial Impact of Career-Ending Injuries Among Elite Irish Rugby Football Union Players. *Journal of Clinical Sport Psychology*, *11*(1), 67–84. doi: 10.1123/jcsp.2016-0012

Arvinen-Barrow, M., DeGrave, K., Pack, S., & Hemmings, B. (2019). Transitioning Out of Professional Sport: The Psychosocial Impact of Career-Ending Non-Musculoskeletal Injuries Among Male Cricketers From England and Wales. *Journal of Clinical Sport Psychology*, *13*(4), 629–644. https://doi.org/10.1123/jcsp.2017-0040

Beamon, K. (2012). “I’m a Baller”: Athletic Identity Foreclosure among African American Former Student-Athletes. *Journal of African American Studies,16*(2), 195-208. doi:10.1007/s12111-012-9211-8

Bianco, T., Malo, S., & Orlick, T. (1999). Sport Injury and Illness: Elite Skiers Describe Their Experiences. *Research Quarterly for Exercise and Sport,70*(2), 157-169. doi:10.1080/02701367.1999.10608033

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Brewer, B. W. (1993). Self-Identity and Specific Vulnerability to Depressed Mood. *Journal of Personality*, *61*(3), 343–364. doi: 10.1111/j.1467-6494.1993.tb00284.x

Brewer, B. W., Cornelius, A. E., Stephan, Y., & Raalte, J. V. (2010). Self-protective changes in athletic identity following anterior cruciate ligament reconstruction. *Psychology of Sport and Exercise,11*(1), 1-5. doi:10.1016/j.psychsport.2009.09.005

Brewer, B. W., & Petitpas, A. J. (2017). Athletic identity foreclosure. *Current Opinion in Psychology*, *16*, 118–122. https://doi.org/10.1016/j.copsyc.2017.05.004

Brewer B. W.,Van Raalte, J. L.,& Linder, D. E. (1993). Athletic identity: Hercules' muscles or Achilles heel? *International Journal of Sport Psychology, 24,* 237-254.

Brown, C. J., Webb, T. L., Robinson, M. A., & Cotgreave, R. (2018). Athletes' experiences of social support during their transition out of elite sport: An interpretive phenomenological analysis. *Psychology of Sport and Exercise*, *36*, 71–80. https://doi.org/10.1016/j.psychsport.2018.01.003

Carapinheira, A., Mendes, P., Carvalho, P. G., Torregrossa, M., & Travassos, B. (2018). Career Termination of Portuguese Elite Football Players: Comparison between the Last Three Decades. *Sports*, *6*(4), 155. doi: 10.3390/sports6040155

Caron, J. G., Bloom, G. A., Johnston, K. M., & Sabiston, C. M. (2013). Effects of Multiple Concussions on Retired National Hockey League Players. *Journal of Sport and Exercise Psychology*, *35*(2), 168–179. https://doi.org/10.1123/jsep.35.2.168

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*, 267–283.

Cecić - Erpičˇ, S. (2001). Athletic identity and adjustment to sport career termination and to post-sport life among Slovenian athletes. In A. Papaioannou, M. Goudas, & Y. Theodorakis (Eds.), *In the dawn of the new millennium* (pp. 32–34). *Proceedings of the 10th world congress of sport psychology*, Vol. 4. Skiathos: Christodoulidi Publications.

Cecić- Erpič, S. C., Wylleman, P., & Zupančič, M. (2004). The effect of athletic and non-athletic factors on the sports career termination process. *Psychology of Sport and Exercise,5*(1), 45-59. doi:10.1016/s1469-0292(02)00046-8

Clement, D., & Shannon, V. R. (2011). Injured Athletes' Perceptions About Social Support. *Journal of Sport Rehabilitation*, *20*(4), 457–470. doi: 10.1123/jsr.20.4.457

Coakley, S. C. A Phenomenological Exploration of the Sport-Career Transition Experiences that affect Subjective Well-Being of Former National Football League Players. (2006)

Coryell, W., Last full review/revision May 2018 by William Coryell. (n.d.). Overview of Mood Disorders - Psychiatric Disorders. Retrieved from https://www.merckmanuals.com/en-ca/professional/psychiatric-disorders/mood-disorders/overview-of-mood-disorders.

Cosh, S., Crabb, S., & Lecouteur, A. (2012). Elite athletes and retirement: Identity, choice, and agency. *Australian Journal of Psychology*, *65*(2), 89–97. doi: 10.1111/j.1742-9536.2012.00060.x

Crossman, J. (1997). Psychological Rehabilitation from Sports Injuries. *Sports Medicine*, *23*(5), 333–339. doi: 10.2165/00007256-199723050-00005

De Bruin, A. P., Oudejans, R. R., Bakker, F. C., & Woertman, L. (2011). Contextual body image and athletes' disordered eating: The contribution of athletic body image to disordered eating in high performance women athletes. *European Eating Disorders Review*, *19*(3), 201–215. https://doi.org/10.1002/erv.1112

Eklund, R. C., Grove, J. R., & Heard, N. P. (1998). The Measurement of Slump-Related Coping: Factorial Validity of the COPE and Modified-COPE Inventories. *Journal of Sport and Exercise Psychology*, *20*(2), 157–175. doi: 10.1123/jsep.20.2.157

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behaviour Research Methods*, *41*, 1149-1160.

Fernandes, Helder & Reis, Victor & Alves, José & Saavedra, Francisco & Aidar, Felipe & Brustad, Robert. (2014). Social support and sport injury recovery: An overview of empirical findings and practical implications. Revista de Psicologia del Deporte. 23. 445-449. 10.13140/2.1.1164.3525.

Fortunato, V., & Marchant, D. (1999). Forced Retirement From Elite Football In Australia. *Journal of Personal and Interpersonal Loss*, *4*(3), 269–280. doi: 10.1080/10811449908409735

Gervis, M., Pickford, H., & Hau, T. (2019). Professional Footballers' Association Counselors' Perceptions of the Role Long-Term Injury Plays in Mental Health Issues Presented by Current and Former Players. *Journal of Clinical Sport Psychology*, *13*(3), 451–468. https://doi.org/10.1123/jcsp.2018-0049

Giannone, Z. A., Haney, C. J., Kealy, D., & Ogrodniczuk, J. S. (2017). Athletic identity and psychiatric symptoms following retirement from varsity sports. *International Journal of Social Psychiatry,63*(7), 598-601. doi:10.1177/0020764017724184

Godin, G. (2011). The Godin-Shephard leisure-time physical activity questionnaire. Health & Fitness Journal of Canada, 4(1), 18-22.

Gordon, S., & Lavallee, D. (2012). Career transitions. In T. Morris & P. Terry (Eds.), The new sport and exercise psychology companion (pp. 567-582). Morgantown, WV: Fitness Information Technology.

Grove, J. R., Lavallee, D., & Gordon, S. (1997). Coping with retirement from sport: The influence of athletic identity. *Journal of Applied Sport Psychology,9*(2), 191-203. doi:10.1080/10413209708406481

Hatzigeorgiadis, A. (2002). Thoughts of escape during competition: relationships with goal orientations and self-consciousness. *Psychology of Sport and Exercise*, *3*(3), 195–207. https://doi.org/10.1016/s1469-0292(01)00039-5

Huffman, R. G., Park, J., Roser-Jones, C., Sennett, B. J., Yagnik, G., & Webner, D. (2008). Normative SF-36 values in competing NCAA intercollegiate athletes differ from values in the general population. The Journal of Bone and Joint Surgery, 90, 471–476. doi:10.2106/JBJS.G.00325

Joseph, S., Linley, P. A., Harwood, J., Lewis, C. A., & McCollam, P. (2004). Rapid assessment of well-being: The Short Depression-Happiness Scale (SDHS). *Psychology and Psychotherapy: Theory, Research and Practice*, *77*(4), 463–478. https://doi.org/10.1348/1476083042555406

Kaul, N. (2017). Involuntary Retirement due to Injury in Elite Athletes from Competitive Sport: A Qualitative Approach. *Journal of the Indian Academy of Applied Psychology*, *43*, 305–315.

Kerr, G., & Dacyshyn, A. (2000). The retirement experiences of elite, female gymnasts. *Journal of Applied Sport Psychology*, *12*(2), 115–133. doi: 10.1080/10413200008404218

Kleiber, D. A., & Brock, S. C. (1992). The Effect of Career-Ending Injuries on the Subsequent Well-Being of Elite College Athletes. *Sociology of Sport Journal,9*(1), 70-75. doi:10.1123/ssj.9.1.70

Kleiber, D., Greendorfer, S., Blinde, E., & Samdahl, D. (1987). Quality of Exit from University Sports and Life Satisfaction in Early Adulthood. *Sociology of Sport Journal,4*(1), 28-36. doi:10.1123/ssj.4.1.28

Knights, S., Sherry, E., & Ruddock-Hudson, M. (2016). Investigating Elite End-of-Athletic-Career Transition: A Systematic Review. *Journal of Applied Sport Psychology*, *28*(3), 291–308. doi: 10.1080/10413200.2015.1128992

Kübler-Ross. E. **(1969).** ***On death and dying.*** London, England: Macmillan.

Kuettel, A., Boyle, E., & Schmid, J. (2017). Factors contributing to the quality of the transition out of elite sports in Swiss, Danish, and Polish athletes. *Psychology of Sport and Exercise*, *29*, 27–39. https://doi.org/10.1016/j.psychsport.2016.11.008

Kujala, U. M., Orava, S., Parkkari, J., Kaprio, J., & Sarna, S. (2003). Sports Career-Related Musculoskeletal Injuries. *Sports Medicine, 33*(12), 869-875. doi:10.2165/00007256-200333120- 00001

Lake, E. (2016). Career Ending Injury Experience of Professional Rugby Players: A Loss Perspective (Partial Fulfilment Master of Science), 1–35.

Lally, P. (2007). Identity and athletic retirement: A prospective study. *Psychology of Sport and Exercise*, *8*(1), 85–99. doi: 10.1016/j.psychsport.2006.03.003

Lamont-Mills, S., Christensen, A. (2006). Athletic identity and its relationship to sport participation levels. Journal of Science and Medicine in Sport, 9, 472-478. doi:10.1016/j.jsams.2006.04.004

Lavallee, D., Grove, J. R., & Gordon, S. (1997). The causes of career termination from sport and their relationship to post-retirement adjustment among elite-amateur athletes in Australia. *The Australian Psychologist, 32,* 131-135.

Lebrun, F., Macnamara, Á, Collins, D., & Rodgers, S. (2019). Elite Athletes Coping With Depression: A Qualitative Study. *Journal of Clinical Sport Psychology, 13*(3), 351-373. doi:10.1123/jcsp.2018-0072

Leddy, M. H., Lambert, M. J., & Ogles, B. M. (1994). Psychological Consequences of Athletic Injury among High-Level Competitors. *Research Quarterly for Exercise and Sport,65*(4), 347-354. doi:10.1080/02701367.1994.10607639

Lerch, S. H. (1982). Athletic retirement as social death: *An* overview. In N. Theberge & P. Donnelly (Eds.), *Sport and the sociological imagination* (pp. 259-272). Fort Worth, T X Texas Christian University Press.

Lim, M.S., Bowden-Jones, H., Salinas, M., Price, J., Goodwin, G.M., Geddes, J., & Rogers, R.D. (2017). The experience of gambling problems in British professional footballers: A preliminary qualitative study. Addiction Research & Theory, 25(2), 129–138. doi:10. 1080/16066359.2016.1212338

Loberg, L. (2008). The Effects of a Career- Ending Injury on an Elite Athlete's Self-Concept and Psychological Distress (Dissertation), 1–135.

Marthinus, J.M. (2007). Psychological effects of retirement on elite athletes (Unpublished doctoral dissertation). Stellenbosch University, South Africa.

Martin, L. A., Fogarty, G. J., & Albion, M. J. (2014). Changes in Athletic Identity and Life Satisfaction of Elite Athletes as a Function of Retirement Status. *Journal of Applied Sport Psychology*, *26*(1), 96–110. https://doi.org/10.1080/10413200.2013.798371

Mental health: a state of well-being. (2014, August 15). Retrieved from https://www.who.int/features/factfiles/mental_health/en/.

McKnight, K. M., Bernes, K. B., Gunn, T., Chorney, D., Orr, D. T., & Bardick, A. D. (2009). Life After Sport: Athletic Career Transition and Transferable Skills. Journal of Excellence, 13, 63-77. http://www.zoneofexcell http://hdl.handle.net/10133/1175

Muscat, A.-C. (2010). Elite Athlete's Experience of Identity Changes During a Career Ending Injury: An Interpretive Description (Dissertation), 1–258.

Nassi, A. (2014). Thesis: PSYCHOSOCIAL IMPACT OF CAREER-ENDING INJURIES IN PROFESSIONAL ICE HOCKEY PLAYERS: A QUALITATIVE STUDY, 1–59.

Papageorgiou, G., Grant, S. W., Takkenberg, J. J. M., & Mokhles, M. M. (2018). Statistical primer: how to deal with missing data in scientific research? *Interactive CardioVascular and Thoracic Surgery*, *27*(2), 153–158. doi: 10.1093/icvts/ivy1

Park, S., Lavallee, D., & Tod, D. (2013). Athletes career transition out of sport: a systematic review. *International Review of Sport and Exercise Psychology*, *6*(1), 22–53. doi: 10.1080/1750984x.2012.687053

Petitpas, A. J., Tinsley, T. M., & Walker, A. S. (2012). Transitions: Ending Active Involvement in Sports and other Competitive Endeavors. *Oxford Handbooks Online*. https://doi.org/10.1093/oxfordhb/9780199731763.013.0027

Pitcho-Prelorentzos, S., & Mahat-Shamir, M. (2019). A Shattered Dream: Meaning Construction in Response to Retirement From Professional Sport Due to Career-Ending Injury. *The Sport Psychologist*, *33*(2), 110–118. doi: 10.1123/tsp.2018-0069

Plateau, C. R., Petrie, T. A., & Papathomas, A. (2017). Exercise attitudes and behaviours among retired female collegiate athletes. *Psychology of Sport and Exercise*, *29*, 111–115. doi: 10.1016/j.psychsport.2017.01.001

Ristolainen, L., Kettunen, J., Kujala, U & Heinonen, A (2012) Sport injuries as the main cause of sport career termination among Finnish top-level athletes, European Journal of Sport Science, 12:3, 274-282, DOI: 10.1080/17461391.2011.566365

Rohrs-Cordes, K., & Paule-Koba, A. L. (2018). Evaluation of an NCAA sponsored online support group for career-ending injured collegiate athletes transitioning out of sports. *Journal for the Study of Sports and Athletes in Education*, *12*(3), 200–219. doi: 10.1080/19357397.2018.1529651

Rosenberg, E. (1982). Athletic retirement as social death: Concepts and perspectives. In N. Thebe* & P. Donnelly (Eds.), *Sport and the sociological imagination* (pp. 245- 258). Fort Worth, TX. Texas Christian University Press.

Russell, W. D. (2000). Coping with Injuries in Scholastic Athletics. *Journal of Physical Education, Recreation & Dance*, *71*(7), 41–46. doi: 10.1080/07303084.2000.10605177

Russell, H. C., Tracey, J., Wiese-Bjornstal, D. M., & Canzi, E. (2018). Physical Activity in Former Competitive Athletes: The Physical and Psychological Impact of Musculoskeletal Injury. *Quest*, *70*(3), 304–320. doi: 10.1080/00336297.2017.1386114

Ryba, T. V., Ronkainen, N. J., & Selänne, H. (2015). Elite athletic career as a context for life design. *Journal of Vocational Behaviour,88*, 47-55. doi:10.1016/j.jvb.2015.02.002

Sallis, J. F., Prochaska, J. J., & Taylor, W. C. (2000). A review of correlates of physical activity of children and adolescents. *Medicine and Science in Sports and Exercise, 32*, 963-975.

Sanders, G., & Stevinson, C. (2017). Associations between retirement reasons, chronic pain, athletic identity, and depressive symptoms among former professional footballers. *European Journal of Sport Science*, *17*(10), 1311–1318. doi: 10.1080/17461391.2017.1371795

Sauro, J. (2015, June 2). 7 Ways to Handle Missing Data. Retrieved from https://measuringu.com/handle-missing-data/

Schlossberg, N. K. (1981). A model for analyzing human adaptation to transition. *The Counseling Psychologist*, *9*, 2–18.

Schou, L., Høstrup, H., Lyngsø, E. E., Larsen, S., & Poulsen, I. (2012). Validation of a new assessment tool for qualitative research articles. Journal of Advanced Nursing, 68, 2086–2094.

Smith, J. L., & McManus, A. (2008). A Review on Transitional Implications for Retiring Elite Athletes: What Happens When the Spotlight Dims? *The Open Sports Sciences Journal*, *1*(1), 45–49. https://doi.org/10.2174/1875399x00801010045

Smith, A., & Milliner, E. (1994). Injured Athletes and the Risk of Suicide. *Journal of Athletic Training*, *29*(4), 337–341.

Snyder, C. R. (1999). *Coping: the psychology of what works*. New York: Oxford University Press.

Sparkes, A. C. (1998). Athletic Identity: An Achilles' Heel to the Survival of Self - Andrew C. Sparkes, 1998. Retrieved from https://journals.sagepub.com/doi/abs/10.1177/104973239800800506.

Stambulova, N., Alfermann, D., Statler, T., & Côté, J. (2009). ISSP Position stand: Career development and transitions of athletes. *International Journal of Sport and Exercise Psychology*, *7*(4), 395–412. doi: 10.1080/1612197x.2009.9671916

Stephan, Y., & Brewer, B. W. (2007). Perceived Determinants of Identification with the Athlete Role Among Elite Competitors. *Journal of Applied Sport Psychology*, *19*(1), 67–79. doi: 10.1080/10413200600944090

Stephan, Y., Torregrosa, M., & Sanchez, X. (2007). The body matters: Psychophysical impact of retiring from elite sport. *Psychology of Sport and Exercise*, *8*(1), 73–83. https://doi.org/10.1016/j.psychsport.2006.01.006

Stokowski, S., Paule-Koba, A., & Kaunert, C. (2019). Former College Athletes' Perceptions of Adapting to Transition. *Journal of Issues in Intercollegiate Athletics*, *12*, 403–426.

Stoltenburg, A.L. & Kamphoff, C.S. & Lindstrom Bremer, Karin. (2012). Transitioning out of sport: The psychosocial effects of collegiate athletes' career-ending injuries. Athletic Insight's Writings in Sport Psychology. 113-132.

Sund, A. M., Larsson, B., & Wichstrom, L. (2003). Psychosocial correlates of depressive symptoms among 12-14-year-old Norwegian adolescents. *Journal of Child Psychology and Psychiatry*, *44*(4), 588–597. doi: 10.1111/1469-7610.00147

Taylor, J., & Ogilvie, B. C. (1994). A conceptual model of adaptation to retirement among athletes. *Journal of Applied Sport Psychology,6*(1), 1-20. doi:10.1080/10413209408406462

Tolentino, J. C., & Schmidt, S. L. (2018). DSM-5 Criteria and Depression Severity: Implications for Clinical Practice. *Frontiers in Psychiatry*, *9*. doi: 10.3389/fpsyt.2018.00450

Vann, S. E., Moore, D. M., Freiburger, K., & Johnson, H. (2019). The End is Not the Injury: Posttraumatic Growth After Sport Injuries. *Journal of Amateur Sport*, *4*(2), 87–102. doi: 10.17161/jas.v4i2.6705

Visek, A. J., Hurst, J. R., Maxwell, J. P., & Watson, J. C. (2008). A Cross-Cultural Psychometric Evaluation of the Athletic Identity Measurement Scale. *Journal of Applied Sport Psychology*, *20*(4), 473–480. https://doi.org/10.1080/10413200802415048

Voss, M. W. (2016). The Chronic Exercise–Cognition Interaction. *Exercise-Cognition Interaction*, 187–209. https://doi.org/10.1016/b978-0-12-800778-5.00009-8

Walker, N., Thatcher, J., & Lavallee, D. (2007). Review: Psychological responses to injury in competitive sport: a critical review. *Journal of the Royal Society for the Promotion of Health*, *127*(4), 174–180. https://doi.org/10.1177/1466424007079494

Webb, W.M. & Altobello, Suzanne & Riley, S. & Headrick, B. (1998). Athlete identity and reactions to retirement from sports. Journal of Sport Behaviour. 21. 338-362

Wiese-Bjornstal, D.M., Smith A.M., & LaMott. E.E. (1995). A model of psychologic re- sponse to athletic injury and rehabilitation. *Athletic Training: Sports Healrh Care Per- specrives. I* (I), 17-30.

Wiese-Bjornstal, D. M., Smith, A.M., Shaffer, S. M., & Morrey, M. A. (1998). An integrated model of response to sport injury: Psychologial and sociological dynamics. *Journal of Applied Sport Psychological, 10 (1), 46-69.* oi: 10.1080/1041320808406377

Williams, N. A., Fournier, J., Coday, M., Richey, P. A., Tylavsky, F. A., & Hare, M. E. (2013). Body esteem, peer difficulties and perceptions of physical health in overweight and obese urban children aged 5 to 7 years. *Child: Care, Health and Development*. https://doi.org/10.1111/j.1365-2214.2012.01401.x

Wippert, P.-M., & Wippert, J. (2008). Perceived Stress and Prevalence of Traumatic Stress Symptoms Following Athletic Career Termination. *Journal of Clinical Sport Psychology*, *2*(1), 1–16. https://doi.org/10.1123/jcsp.2.1.1

Wolanin, A., Gross, M., & Hong, E. (2015). Depression in Athletes. *Current Sports Medicine Reports*, *14*(1), 56–60. doi: 10.1249/jsr.0000000000000123

World Health Organization and Calouste Gulbenkian Foundation. Social determinants of mental health. Geneva, World Health Organization, 2014.

Wylleman, P., Alfermann, D., & Lavallee, D. (2004). Career transitions in sport: European perspectives. *Psychology of Sport and Exercise,5*(1), 7-20. doi:10.1016/s1469-0292(02)00049-3

CHAPTER SEVEN: APPENDICES

Appendix A

Table 1: Search Terms

Transition	**Identity**	**Psychological Factors**	**Physiological attributes**	**Other**
Retirement	Identity Foreclosure	Mood Disorder	Bodily Composition	Male and Female Athletes
Involuntary	Athletic Identity	Mood Disturbances	Bodily Changes	Unspecific to Injury/Sport type
Voluntary	Strong/Weak Athletic Identity	Mental Health	Physical Limitations	Serious Sport Injury
Smooth Transition	Social Identity	Life Satisfaction	Limited of Range of Motion	Sport Injury
Turbulent Transition	Self-Identity	Wellbeing	Pain	Professional, Competitive, Elite, Former/ Retired Athletes
Career Ending Injuries	Self-Esteem	Quality of Life	Physical Changes	Older than 18
Forced Retirement	Self- Concept	Coping Mechanisms	Loss of Muscle	Diverse Demographic Background
Crisis Transition	Self-Perception	Social Support	Range of Motion	Articles in English or Translated in English
		Mind and Body Dualism	Physical Abilities	Individual or Team Sports
		Mind and Body Interaction		
		Negative Affective Behaviours		
		Positive Affective Behaviours		

Table 2: Search Syntax

Retirement	**Psychosocial Effects**	**Psychological Effects**	**Physical Attributes**	**Coping Mechanisms**
Career Ending Injuries in Elite Athletes	Social and Environmental Impacts of Career	Negative Affective Behaviours due	Physiological Changes as a Result of	Coping Mechanism Used by

	Ending Injuries in Elite/Competitive Athletes	to Career Ending Injuries	Injuries in Athletes	Former Athletes
Adjustment Difficulties in Elite Athletes after Career Ending Injuries	Self-perceptions in Athletes Post Career Ending Injuries	Psychological Impact of Career Ending Injuries in Athletes	Mind and Body Dualism in Former Athletes	Adaptive Coping Mechanisms Utilized by Former Athletes
Retirement Challenges in Former Athletes	Psychosocial Impacts of Career Ending Injuries in Competitive/ Elite Athletes	Emotional Reactions to Career Ending Injuries	Changes in Body Composition Post-Athletic Career	Maladaptive Coping Strategies Used by Athletes
Negative Effects of Serious injuries		Mood Disturbances in Athletes Post-Athletic Career	Forced Retirement in Athletes	Social Support Used by Former Elite and Competitive Athletes
Involuntary Retirement from Sports due to Serious Injuries in Elite/Competitive Athletes		The Effects of Mood Disturbances in Elite Athletes	Pain in Elite Athletes Post-Athletic Retirement	
Post Involuntary Retirement in Elite Athletes				

Appendix B

Table 3: Qualitative Coding for Studies Included

	Minimum Totally Disagree 1	**Disagree 2**	**Agree 3**	**Maximum Totally Agree 4**	**Median**
Formal Requirements					
1. Background of the study is described through existing literature			19		N/A
2. It appears why the study is relevant			19		N/A
3. It is described how demands to informed consent have been met (Helsinki Declaration)		16	2	1	2
4. It is described if there are relevant approvals		8	10	1	8
5. The researcher has described whether the study can affect the informants	2	15	2		2
6. The researcher has described what will be done if the study affects the participants	3	14	2		3
Credibility					
7. The purpose is described clearly		1	16	2	2
8. The method is described			16	3	17.5
9. Arguments for choice of methods have been made		6	13		17.5
10. The method suits the purpose			16	3	17.5
11. There is a description of how data were registered	1	3	14	1	14.75
12. Triangulation has been applied		13	6		9.5
13. The research process is described		3	14	2	3
Transferability					
14. Selection of informants or sources is described		1	18		9.5
15. There is a description of the informants		1	18		9.5

16. It is argued why these informants are selected		2	17		9.5
17. The context (place and connection of research) is described	1	14	2	2	8
18. The relationship between the researcher(s) and the context (in which the research takes place) and the informants	1	14	4		4
Dependability					
19. A logical connection between data and themes is described		1	18		9.5
20. The process of analysis is described		4	13	2	4
21. There is a clear description of the findings		1	15	3	3
22. The findings are credible			19		N/A
23. Any quotation is reasonable/supporting interpretation		3	16		9.5
24. There is agreement between the findings of the study and the conclusions			19		N/A
Confirmability					
25. The researcher has described his background		17		2	9.5
26. There are references to theorists (clear who has inspired the analysis)		2	17		9.5
27. Description of whether themes were identified from data or formulated in advance			19		N/A
28. It is described who conducted the study	1	7	7	4	5.5
29. It is described how the researcher participated in the process	1	8	6	4	5
30. The researcher has described whether his/her position is important in relation to the findings	2	16	1		2

Note: The VAKS (Appraisal of Qualitative Studies) developed by Shou, Hostrup, Lyngso et al. (2012) was utilized to assess qualitative studies. The assessment tool comprised of five categories: *formal requirements, credibility, transferability, dependability and confirmability* with a total of 30 items, rated on a 4-point Likert scale (1= totally disagree to 4= totally agree). The final score determined the overall quality rating of the study into weak, moderate and strong quality.

Table 4: Quantitative Coding for the Study Included

Study	Domain 1	Domain 2	Domain 3	Domain 4	Domain 5	Domain 6	Domain 7	Domain 8	Global
Cecić-Erpič, et al., 2004	S	S	N/A	S	S	S	M	M	S

Note: The Public Health Research, Education and Development (PHRED) tool developed by McMaster University School of Nursing (Thomas, Ciliska, Dobbins, & Micucci, 2004) was utilized to assess quantitative studies. The assessment tool is divided into seven domains: Domain 1 = Selection Bias; Domain 2 = Study Design; Domain 3= Confounders; Domain 4 = Blinding; Domain 5 = Data Collection Methods; Domain 6 = Withdrawals and Drop-Outs; Domain 6 = Intervention Integrity; Domain 7 = Analysis; W= weak; M=moderate; S=strong.

Appendix C

Athletic Identity Measurement Scale

Statements	**Strongly Disagree**	**Disagree**	**Slightly Disagree**	**Neither Agree nor Disagree**	**Slightly Agree**	**Agree**	**Strongly Agree**
1. I considered myself an athlete	1	2	3	4	5	6	7
2. I had many goals related to sport(s)	1	2	3	4	5	6	7
3. Most of my friends were athletes	1	2	3	4	5	6	7
4. Sport(s) were the most important part of my life	1	2	3	4		6	7
5. I spent more time thinking about sport(s) than anything else	1	2	3	4	5	6	7
6. I needed to participate in sport(s) to feel good about myself	1	2		4	5	6	7
7. Other people saw me mainly as an athlete	1	2	3	4	5	6	7
8. I felt bad about myself when I did poorly in sport(s)	1	2	3	4	5	6	7
9. Sport(s) was the only important thing in my life	1	2	3	4	5	6	7
10. I would be very depressed if I were injured and could not complete in sports	1	2	3	4	5	6	7

Mood and Feelings Questionnaire

Statements	**Not True**	**Sometimes**	**True**
11. I felt miserable or unhappy	0	1	2
12. I didn't enjoy anything at all	0	1	2
13. I was less hungry than usual	0	1	2
14. I ate more than usual	0	1	2
15. I felt so tired I just sat around and did nothing	0	1	2
16. I was moving and walking more slowly than usual	0	1	2
17. I was very restless	0	1	2
18. I felt I was no good anymore	0	1	2
19. I blamed myself for things that weren't my fault	0	1	2
20. It was hard for me to make up my mind	0	1	2
21. I felt grumpy and cross with other people	0	1	2
22. I felt like talking less than usual	0	1	2
23. I was talking more slowly than usual	0	1	2
24. I cried a lot	0	1	2
25. I thought there was nothing good for me in the future	0	1	2
26. I thought that life wasn't worth living	0	1	2
27. I thought about death or dying	0	1	2
28. I thought my family would be better off without me	0	1	2
29. I thought about killing myself	0	1	2
30. I didn't want to see my friends	0	1	2
31. I found it hard to think properly or concentrate	0	1	2
32. I hated myself	0	1	2
33. I worried about aches and pains	0	1	2
34. I felt lonely	0	1	2
35. I thought nobody really loved me	0	1	2
36. I didn't have any fun in any of my activities	0	1	2
37. I thought I could never be as good as other people	0	1	2
38. I did everything wrong	0	1	2
39. I didn't sleep as well as I usually sleep	0	1	2

40. I slept a lot more than usual	0	1	2

COPE Questionnaire

Statements	**I usually didn't do this at all**	**I usually did this a little bit**	**I usually did this a medium amount**	**I usually did this a lot**
41. I tried to grow as a person as a result of the experience	1	2	3	4
42. I turned to work or other substitute activities to take my mind off things	1	2	3	4
43. I got upset and let my emotions out	1	2	3	4
44. I tried to get advice from someone about what to do	1	2	3	4
45. I concentrated my efforts on doing something about it	1	2	3	4
46. I said to myself "this isn't real"	1	2	3	4
47. I admitted to myself that I can't deal with it and quit trying	1	2	3	4
48. I discussed my feelings with someone	1	2	3	4
49. I used alcohol or drugs to make myself feel better	1	2	3	4
50. I got used to the idea that it happened	1	2	3	4
51. I talked to someone to find out more about the situation	1	2	3	4
52. I kept myself from getting distracted by other thoughts or activities	1	2	3	4
53. I used to daydream about things other than this	1	2	3	4
54. I got upset and was really aware of it	1	2	3	4
55. I made a plan of action	1	2	3	4
56. I accepted that this happened and that it couldn't be changed	1	2	3	4
57. I tried to get emotional support from friends or relatives	1	2	3	4
58. I gave up trying to reach my goal	1	2	3	4
59. I took additional action to try to get rid of the problem	1	2	3	4
60. I tried to lose myself for a while by drinking alcohol or taking drugs	1	2	3	4

61. I refused to believe that it had happened	1	2	3	4
62. I let my feelings out	1	2	3	4
63. I tried to see it in a different light, to make it seem more positive	1	2	3	4
64. I talked to someone who could do something concrete about the problem	1	2	3	4
65. I slept more than usual	1	2	3	4
66. I tried to come up with a strategy about what to do	1	2	3	4
67. I focused on dealing with this problem, and if necessary, let other things slide a little	1	2	3	4
68. I got sympathy and understanding from someone	1	2	3	4
69. I drank alcohol or took drugs, in order to think about it less	1	2	3	4
70. I gave up the attempt to get what I wanted	1	2	3	4
71. I looked for something good in what was happening	1	2	3	4
72. I thought about how I might best handle the problem	1	2	3	4
73. I pretended that it wasn't really happening	1	2	3	4
74. I tried hard to prevent other things from interfering with my efforts at dealing with this	1	2	3	4
75. I went to the movies or watched TV, to think about it less	1	2	3	4
76. I accepted the reality of the fact that it happened	1	2	3	4
77. I asked people who have had similar experiences what they did	1	2	3	4
78. I felt a lot of emotional distress and I found myself expressing those feelings a lot	1	2	3	4
79. I took direct action to get around the problem	1	2	3	4
80. I reduced the amount of effort I was putting into solving the problem	1	2	3	4
81. I talked to someone about how I felt	1	2	3	4
82. I used alcohol or drugs to help me get through it	1	2	3	4
83. I learned to live with it	1	2	3	4
84. I put aside other activities in order to concentrate on this	1	2	3	4
85. I thought hard about what steps to take	1	2	3	4

86. I acted as though it didn't even happen	1	2	3	4
87. I did what had to be done, one step at a time	1	2	3	4
88. I learned something from the experience	1	2	3	4

Mental Health

Statements	**None of the time**	**Rarely**	**Some of the time**	**Often**	**All of the time**
78. I was feeling optimistic about the future	1	2	3	4	5
89. I felt good about myself	1	2	3	4	5
90. I was able to try new things now that I was not involved in sports	1	2	3	4	5
91. I was able to think clearly	1	2	3	4	5
92. I was able to feel close to other people	1	2	3	4	5
93. I was able to feel confident about retirement	1	2	3	4	5

Body Esteem

Think back to when you retired from your desired sport: voluntary or involuntary. If you retired involuntary think about the entire experience of injury, recovery and transitional process into retirement and circle the numerical value which best described your experience.

During retirement…	**Very Ugly**	**Ugly**	**Somewhat Ugly**	**Neither Ugly, Nor Good Looking**	**Somewhat Good Looking**	**Good Looking**	**Very Good Looking**
94. I thought my appearance was	1	2	3	4	5	6	7
95. I thought my appearance compared to others was	1	2	3	4	5	6	7
96. Others thought my appearance was	1	2	3	4	5	6	7

During retirement…	Much Too Thin	Too Thin	Somewhat Too Thin	Neither Too Thin, Nor Too Fat	Somewhat Too Fat	Too Fat	Much Too Fat
97. I thought my body shape was	1	2	3	4	5	6	7
98. I thought my body shape compared to others was	1	2	3	4	5	6	7

During retirement…	Much too Unmuscular	Too Unmuscular	Somewhat Too Unmuscular	Neither Too Unmuscular, Nor Too Muscular	Somewhat Too Muscular	Too Muscular	Much Too Muscular
99. I thought the muscularity of my body was	1	2	3	4	5	6	7
100. I thought the muscularity of my body compared to others was	1	2	3	4	5	6	7

During retirement…	Much Too Low	Too Low	Somewhat Too Low	Neither Too Low, Nor Too High	Somewhat Too High	Too High	Much Too High
101. I thought body weight was	1	2	3	4	5	6	7
102. I thought my fat percentage was	1	2	3	4	5	6	7
103. I thought my body weight compared to others was	1	2	3	4	5	6	7
104. I thought my fat percentage compared to others was	1	2	3	4	5	6	7

Physical Activity

During the **recovery period** (post-surgery and cleared to exercise) how many times on average, did you do the following kinds of exercise for more than 15 minutes during your free time? (Write on each line the appropriate number). If the question does not apply to you, please move onto the next.
Activity score = (9 x strenuous) + (5 x moderate) + (3 x light)

EXAMPLE
Light= 5 times a week at 30 minutes

	Times per week	Average duration in minutes	Total
a) **STRENUOUS EXERCISE (HEART BEATS RAPIDLY)** such as running, jogging, hockey, football, soccer, squash, basketball, cross country skiing, judo, roller staking, vigorous swimming, vigorous long-distance bicycling		X9	
b) **MODERATE EXERCISE (NOT EXHAUSTING)** such as fast walking, baseball, tennis, easy bicycling, volleyball, badminton, easy swimming, alpine skiing, popular and folk dancing		X5	

c) **MILD/LIGHT EXERCISE (MINIMAL EFFORT)** such as yoga, archery, fishing from riverbank, bowling, horseshoes, golf, snow-mobiling, easy walking		X3	

If none of the above apply, please state what physical activity/activities you participated in, how many times a week and for what length of time during your recovery period.

During **retirement** how many times on average, did you do the following kinds of exercise for more than 15 minutes during your free time? (Write on each line the appropriate number). If the question does not apply to you, please move onto the next.

	Times per week	Average duration in minutes	Total
a) **STRENUOUS EXERCISE (HEART BEATS RAPIDLY)** such as running, jogging, hockey, football, soccer, squash, basketball, cross country skiing, judo, roller staking, vigorous swimming, vigorous long-distance bicycling		X9	

b) **MODERATE EXERCISE (NOT EXHAUSTING)** such as fast walking, baseball, tennis, easy bicycling, volleyball, badminton, easy swimming, alpine skiing, popular and folk dancing		X5	
c) **MILD/LIGHT EXERCISE (MINIMAL EFFORT)** such as yoga, archery, fishing from riverbank, bowling, horseshoes, golf, snow-mobiling, easy walking		X3	

If none of the above apply, please state what physical activity/activities you participated in, how many times a week and for what length of time during your recovery period.

Physical Attributes
Please answer as detailed as possible. If questions do not apply, move onto the next.

105. What physical limitations did you experience at the time of injury?

106. Did you require surgery?
Yes [ ]
No [ ]

107. If yes, what were your limitations/restrictions. Be detailed as possible

108. How long did it take you to recover?

109. Did you continue to experience any physical limitations/restrictions after recovery? And for how long?

110. Do you experience any physical limitations to this day?

Financial Support

111. Did you receive a financial wage from sports?
Yes [ ]
No [ ]

112. If yes, please state how much you earned from your desired sport and for how long. If not, please move onto the next question.

_____

_____

113. Did you work throughout your athletic career?
Yes [ ]
No [ ]

114. If yes, what did you do? If not, why not?

_____

_____

115. Did you experience any financial challenges after retirement? If so, what were they?

_____

_____

116. Post-athletic retirement, how long did it take you to find another source of income? What was your job?

_____

_____

Appendix D

Table 5: Mean, SD and Internal Consistency

Measures	Mean	Standard Deviation	Internal Consistency	Min.	Max.
Athletic Identity Measurement Scale	55.3	8.6	.827	28	69
Mood and Feelings Questionnaire	19.6	13	.941	1	56
Mental Health	20.2	4.3	.874	10	29
Appearance (Body-Esteem)	12.6	4	.817	4	18
Body Shape (Body-Esteem)	9.7	2.4	.921	3	14
Muscularity (Body-Esteem)	6.7	2.2	.772	2	13
Body Weight (Body-Esteem)	20	4.3	.952	8	28
COPE	108.4	15.2	.854	77	138

Appendix E

Table 7: Effects of Injuries in Involuntary Retirement Participants

Time Period of Injury	Injury Type	Physical Effects
Initial Onset of injury/ Shortly After	Arm/hand/wrist injury	- Impacted grip strength - Decreased range of motion
	Concussions	- Dizziness - Fatigue - Difficulty reading - Headaches - Abnormal sleep patterns - Phonophobia - Severely inhibited ability to focus or concentrate - Limited or no form of physical activity
	Knee injury	- Inability to run, jump, climb or bike - Difficulty performing specific exercises (squats, lunges) - Inability to lift heavy weights - Difficulty walking without assistance (crutches or knee brace)
	Spinal cord injury	- Paralyzed from the shoulders down - Moderate loss of lower limb function (still ambulatory however, with assistance)
Recovery from Surgery or without surgery	Arm/hand/wrist	- Numbness around the scar - Soreness - Continued limited range of motion
	Concussion	- Inability to exercise at maximum potential
	Knee injury	- Soft tissue damage - Lack of range of motion - Inability to exercise at maximum potential - Ongoing physical pain
	Spinal cord injury	- Regained limited upper body movements (hands, arms and core)

		- Continued to experience no lower body movements
Present Day Limitations	Arm/hand/wrist	- Ongoing decrease in grip strength - Lack of range of motion
	Concussion	- Ongoing headaches - Dizziness - Fatigue - Constant ringing in the ear - Hearing fluctuation - Impaired vision - Short-term memory - Increased sensitivity to light
	Knee injury	- Ongoing inability/challenges in taking part in specific exercises or physical activity
	Spinal cord injury	- Regained limited upper body movements (hands, arms and core) - Continued to experience no lower body movements

Table 8: Financial Experience/Consequences:

Themes from Financial Experience/Consequences	**Voluntary Retirement**	**Involuntary Retirement**
Number of Participants who Received Monetary Compensation	9/24	9/26
Earnings Received Over Several Years: (bi-weekly, monthly/yearly/seasonal)	Bi-weekly: - $86 Monthly: - Ranged between $800-2750 Yearly: - 3,000- 70,000 Seasonal: - 4,000- Per Fight: - $2,000	Bi-weekly: - Monthly: - $450 - 1,000 Yearly: - $2,000- 60,000 Seasonal:
Financial Challenges Post-Athletic Career (whether they received financial compensation or not)	- Had to start from scratch, difficulty in finding a job	- Inability to work due to injury

	- Limited to no funds as well as savings - Re-acclimating with annual financial demands	- Homelessness/couch surfing for 6 months post-athletic career - Loss of sport funding - Utilization of food banks - Delayed payments from contract

Appendix F

Table 11: Interview Participants Characteristics (Voluntary Retirement)

	Gender	**Sport Type**	**Sport Level**	**Sport**	**Location**
Participant 1	Female	Team	Competitive	Rugby	Ontario
Participant 2	Male	Team	Competitive	Football	Ontario
Participant 3	Male	Individual	Competitive	TaeKwonDo	New Brunswick
Participant 4	Male	Team	Competitive	Football	New Brunswick

Table 12: Interview Participants Characteristics (Involuntary Retirement)

	Gender	**Sport Type**	**Sport Level**	**Sport**	**Injury**	**Surgery**	**Location**
Participant 5	Female	Team	Competitive	Rugby	Torn ACL, MCL and meniscus	Yes	New Brunswick
Participant 6	Female	Team	Competitive	Rugby	Torn lateral meniscus	Yes	Ontario
Participant 7	Female	Team	Competitive	Rugby	Torn meniscus	Yes	Ontario
Participant 8	Male	Team	Competitive	Football	Torn Achilles	No	Ontario

Appendix G

Voluntary Retirement Interview Questions

Circumstances Surrounding Athletic Retirement

1. What was your reason for voluntary retiring from sports?
2. How did you prepare for retirement?
3. How long before retirement, did you start planning your athletic retirement?

Athletic Identity

1. How would you define your athletic identity?
2. Did you have more than one identity/social role during your athletic career? If yes, what were they?

   If not, why do you think that was?
3. What were the benefits of having more than one identity/social role? How did it help you transition into retirement?
4. Without your athletic identity (strong or weak), how did it psychologically affect you?
5. How did losing your athletic identity affect your social/public identity?

Mood Disturbances/Disorder

1. How did it make you feel when you retired from sports?
2. Did you miss playing sports? If yes, how did that make you feel?
   a. If not, how come?
   b. In what ways did you miss playing sports?
3. Were you clinically diagnosed with a mood disorder (major depressive disorder, dysthymia, bipolar disorder) during retirement?
4. What were the most common emotions, you felt during retirement?
5. How long did it take for your psychological state to improve? In what ways?

Physical Activity

1. How long did it take you to start participating in physical activity again?
    a. Why do you think it took that amount of time to start participating in physical activity again?
2. What activities did you participate in after retirement?
3. In what ways did you try and manage your weight?

Physical Attributes

1. Did you notice a decrease in muscle tone? If yes, which part(s) of your body.
2. Did you notice a change in fitness levels?
3. What physical changes did you notice the most?

Body Esteem

1. Was there a change in your body esteem? If yes, explain. If not, explain.
2. After retirement, did you become body conscious? If yes, how so? If not, why do you think that was?
3. Did you notice a change in body esteem after retirement? If yes, explain. If not, explain.

Coping Mechanisms

1. What coping mechanisms did you use?
2. In what ways did you think it was beneficial to use those coping techniques?
3. This is a personal question, you do not need to answer, if you feel uncomfortable. Did you use suicide ideation to cope with the termination of your career/sport injury?

Social Support

1. Who was your primary and secondary source of social support?
2. How did they help you?
3. In what ways, did your teammates, coaches or athletic trainers help you?

4. Did you remain a part of the team? If yes, why? If not, how come?
5. Did you seek professional help?
6. How long did you go to therapy?
    a. Did you find it to be beneficial? If yes, how?
    b. If not, why not?

Involuntary Retirement Interview Questions

Circumstances Surrounding the Injury and Sport Transition

1. What injury did you sustain?
2. What was your immediate reaction to being injured?
3. Did you know at that moment in time, your career was over?
4. How did the unexpectedness of your injury affect you?
5. Were you able to rediscover yourself after sports? (friends, job, academics, interests/hobbies).

Athletic Identity:

1. How would you define your athletic identity?
2. Post-career ending injury, were you able to create another identity and/or social roles?
3. How long did it take you to form a new identity/identities?
4. Without your athletic identity (strong or weak), did it psychologically affect you?
5. Did losing your athletic identity affect your social/public identity?
6. What social roles, if any, did you identify with at the time of injury? Post retirement?

Mood Disturbances/Disorder and Mental Health

1. Were you clinically diagnosed with a mood disorder (major depressive disorder, dysthymia, bipolar disorder) during retirement?
2. At the time of injury, what emotions do you recall experiencing?
3. Did you require surgery? If so, how did that impact your emotional (mental health, mood) state?
4. What were the most common emotions, you felt during recovery? Post-retirement?
5. How long did it take for your psychological state to improve? In what ways?

Physical Attributes

1. Did you require surgery? If yes, what physical limitations did you experience?

2. How long did you experience those physical limitations? At the initial injury, post recovery, post retirement to present.

3. Did you go to physiotherapy? If yes, in what ways did it benefit you?

    a. Or, if it didn't, why do you think that was?

Mind and Body Dualism

1. Athletes are taught mental toughness, that when they sustain an injury in practice or competition, they are told to get up, walk it off or play through the pain and as a result of that, did you find mentally, you wanted to continue playing but your body was physically unable to do so? For example, would you try to push yourself or continue practicing but failing to complete the tasks at hand because your injury prevented you from practicing/competing?

Body Esteem

4. Was there a change in your body esteem? If yes, explain. If not, explain.

5. Before you were injured, were you self-conscious about your body image?

6. After retirement, did you become body conscious? If yes, how so? If not, why do you think that was?

Physical Activity and Physical Changes

1. In what ways did your body change physically post injury? (muscle mass, fitness levels, body weight).

2. Did you try to remain physically active after you fully recovered? Why or why not? And in what ways?

3. In what ways did you try and manage your weight?

Coping Mechanisms

4. What coping mechanisms did you use?

5. In what ways did you think it was beneficial to use those coping techniques?

6. This is a personal question, you do not need to answer, if you feel uncomfortable. Did you use suicide ideation to cope with the termination of your career/sport injury?

Social Support

7. Who was your primary and secondary source of social support?
8. How did they help you?
9. In what ways, did your teammates, coaches or athletic trainers help you? If not, how did that make you feel?
10. Did you remain a part of the team? If yes, why? If not, why not?
11. Did you seek professional help?
12. How long did you go to therapy?
    a. Did you find it to be beneficial? If yes, how? If not, why not?
13. If you did not go to therapy, why did you choose not to go?

Appendix H

Table 13: Themes/Subthemes and Example Quotes from Interviews

Themes/Subthemes	**Voluntary Retirement**	**Involuntary Retirement**
Identity		
Strong Athletic Identity (3/8)		"I definitely did have a strong sense of an athletic identity because it was just engrained in my entire student life and all this stuff was at the forefront of everything I did as a student athlete, I know they say student comes first but for me, it was the athletic part came first." "I felt two steps behind everyone else who either wasn't an athlete or didn't see themselves as an athlete more so than anything else, people who took more time worrying about other aspects of their life or had the luxury to do so and still be a high functioning athlete so I definitely felt a little stifled or a little stunted in terms of growth, it was definitely a challenge."
Weak Athletic Identity (5/8)	"I didn't play rugby until I got to university, I'm a kin student and I also play rugby" "I wasn't really so much all about sports for me, I was a university student, so I had other things to do."	
Public Identity (5/8)	"In terms of like of how other people see you, you're hanging out with other people that play that sport, it reflects a group persona, so, you definitely feel like a football player, when you wear an athletic jacket with five or six other people that are wearing an athletic jacket, it feels it's very group oriented."	"After my injury, since I did kind of have that extra time to explore different avenues, different groups or different opportunities, that's when I really was more multifaceted, like some of the other volunteer work I did on campus they only knew me as (name), and I still have the rugby bubble, I had my work bubble so I kinda had more time to venture

	"If I would see other players that I played with that are still playing or old coaches like out in the public area, then I would definitely feel like they perceived me a little differently, like this guy isn't playing anymore or he's probably rusty or he's not that great anymore, maybe they aren't as athletic as they once were."	out to try different things or meet other people." "It didn't make me feel any less about myself, it made me re-analyze or just take note of how people see me and how I need to value them in my life, if someone were to walk up to me and the only thing they wanted to talk about, the only thing they pushed to talk about was football or me as an athlete even if I tried to direct the conversation in other areas then I'll act pre-emptively."
Absence of Identity (8/8)	"It definitely paints you in a certain light, other people's action do reflect on you and that was a big part of the reason I'd say it was nice to kind of gain that individualism after leaving the team." "I did have the feeling of loss but the emotion that was experienced would have been half sadness and confusion like what would I do to fill my time now?"	"In the situation of how my injury occurred during a game, it just felt like it was ripped away from me and it wasn't that I progressed into it. So, it was definitely something I struggled with after because it's like okay I am not on the pitch, I'm in the stands now watching the girls play, so who the hell am I? I struggled there because I'm not (name) the rugby player 'cause I am no longer playing so what am I? Am I (name) this? Am I (name) that? So yeah, I definitely struggled there to figure it out." "It just made me very emotional and sad and I just I viewed my body differently, I was just disappointed and it's definitely tough not having that sport identity anymore."
Development of Identities (3/8)		"I'd say, I'm still in the process of working on that but I think that I've had to kind of redefined myself outside of my sport and my comfort zone and I feel like I really push myself out of my element and I have been able to, so now I have my job, I'm a security guard so I have both coworkers and friends that I've

		made that are totally different from the ones I played sports with, so I have that group now and we have the same goals of being a police officer." "I'm not creating a new identity, the strong athletic identity is just taking another function, it's just being repurposed, in one aspect of it, it's being compartmentalized but in another aspect of it, it's being used as an insight, its being used as a point of view, while being injured but still in school, I was definitely a mentor."
Mental Health/Mood Disturbances		
Positive Feelings from Athletic Retirement (3/8)	"It benefitted me, having the different outlets to turn to when I wasn't playing the sport anymore, I would say that since I had already established that I was working and school was important, I felt like putting more of my time into those areas. I've seen results in other areas how I personally perform at work, I have more energy in general just to pursue other things and be attentive while doing them." "So that's kinda what has changed things for me like when I do miss sports and think back on it I'm like awh, I'd love to participate in it again, but I get to participate in that sport still because I coach now, and it's awesome, I love that."	
Psychological Interpretation to Athletic Retirement (3/8)	"I felt like the demands in terms of my free time, more so the training aspect of it and actually playing the sport was a lot of preparation in terms of like meetings, it was just taking up a	"Super frustrated, angry 'cause like what's happening? Annoyed 'cause you can't do anything for yourself." "First in shock then kind of hopeful, because I thought I was gunna recover quickly and be able

	lot of time so, it caused me a lot of trouble." "Confused just like on what I was gunna do with the extra time, maybe a little bit anxious to, just trying to sort things out, those three to four months was really just awkward."	to play in the tournament coming up then it quickly turned to, just like disappointment, sadness, I started getting angry and taking it out on friends because I was jealous that they could still play and I could feel it was really affecting my friendships and I kind of just secluded myself and became really closed off from everyone because I was just really upset."
Emotional Reaction to Being Injured (4/8) *Emotional Reaction to Surgery (4/8)*		"You get injured and then you go to rehab and then you're like kind of getting better than it's like okay, now, you had surgery and you're back at square one and then you're in so much pain, like can't get upstairs, can't carry a plate of food 'cause I'm on crutches." "The surgery was actually a relief because I was in so much pain for so long it was a relief to me that there was gonna be a solution and the problem would be fixed."
Emotional State Post-Recovery/Retirement (2/8)		"Emptiness, just like I lost apart of myself a bit, now I kind of have this void especially because rugby took up so much of my life like practicing, team meetings, games, travelling to games, away games and when I wasn't playing, I got all this extra time, so it's like a void." "Feeling sad and disappointed, I would celebrate the little progressions I had recovering but overall, I haven't been at the same capacity that I was before physically, so it's been really emotional and bad for me because I know what I am capable of but I'm not there yet."

Improved Psyche (4/8)		"When I was starting to get better with my rehab, was when I really started to feel more positive every day and there was no longer this, oh my gosh, my world is ending, and honestly, part of it was still being involved with Lettermen and I kind of pushed myself more into the background of sports." "After a while, it was definitely a lot of positivity, lot of optimism, a lot of motivation drive, ambition, and I can't say there was one moment that led to positive thoughts just optimism in my future."
Physical Activity (8/8)	"I'd say I'm more active now because my training is on my own time so, I'm also able to work out more consistently because I'm not being forced to work out at specific times." "I've been consistent where it's either five days, six days or four days a week that I work out and I started feeling good about myself, I started losing some weight, my clothes were a lot bigger so then I just felt really good about myself."	"At the beginning post-surgery, I was really motivated to try and be active and keep up on my workouts and everything but then slowly, I just started not being as disciplined to go to gym and there was a lot of other barriers, I moved to a new province, getting used to the new area, the living situation and dealing with the pandemic (COVID-19) so gyms have been closed so I guess those factors weighed in as well and it was more difficult to go to the gym and then it turned into a few days that I missed then into weeks then months and now it's a downward spiral."
Bodily Dimensions		
Muscle Tone/Mass (8/8)	"I would say because I wasn't doing as much cardio, I definitely lost my abdomen, I would have lost about five to 10 pounds of muscle and maybe put on five pounds of fat, pretty well the rest of myself like legs and arms, shoulders and neck, I haven't noticed much muscle tone lost there."	"I lost muscle, my leg was like a spaghetti noodle and then more so after surgery I lost a bunch muscle like I lost weight."

Fitness Levels (8/8)	"They decreased, I only do cardio for rugby, that's about it." "I definitely noticed right off the bat my cardio went down and stuff like that (during the four months of being inactive) and now, I always do cardio, every time I go to the gym, I try to do cardio first."	"I didn't have the same body that I had when I was actively playing in a sport but even now I will work out a bit but because of the strain on my right knee it's like, I don't have the same amount of power."
Weight Management (8/8)	"I did nothing to manage my weight (laughs), went to the gym, played rugby and hoped for the best." "I was trying to be I guess healthy through eating and other things and still trying to go to the gym."	"The eating disorder kind of just started in high school like before I was injured but then kinda got worse after 'cause it's like I can't workout, okay, well, I can't eat."
Body Esteem		
Levels of Body-Esteem (8/8)	"I was gaining weight, I was not taking care of myself and just like super, super negative right? I was fat, I hated the way I look and then I kinda just complained so much right and I never tried to look for a solution, if I never stopped playing sports, you know, my clothes wouldn't be too small or I wouldn't have to buy bigger clothes." "It was more so knowing I wasn't playing sports, staying at home, gaming and just watching movies and the loss of activeness." "I'd say it (body-esteem) got better while playing, I think because I grew to love my body through playing and just like knowing how to work out properly and how that's helping me, maybe, not body image wise but just for like strength wise"	"I'm not really trying to put myself in outfits that I was before, just because of a combination of a bit of stress eating; not being able to go to the gym, when you miss a few days or a month of going to the gym consistently, your body loses that definition, I was used to looking at such an athletic physique and it turned into your fit but not at that caliber or physique anymore." "Definitely triggered a lot of emotions, I attributed my happiness a lot with my physical abilities like when I do well at the gym or in sports, that's when I feel happy so the physical changes definitely made me feel depressed and sad, it was just overwhelming that the emotions were negative." "There wasn't much of a drop off, it was a manageable amount of drop off and I know the steps needed to get back."

Self-Consciousness (8/8)	"I don't think I became self-conscious after retirement, I think it's because I felt good, also with rugby there's so many different body type, there's big girls, there's small girls, there's tall girls, there's short girls, even in summer rugby you have so many different body types like I have no reason to feel bad about my body when everyone's got a good body here." "When I was playing sports, I was less conscious about my body, I knew that I was working out and I was stretching and I was doing all this stuff that it had to be good for my body so, I didn't really think about it, I didn't think about the negatives that went along with it and now that I'm not playing sports, I'd say I'm more conscious about my body but in a good way, like watching what I'm eating and exercising."	"I was self-conscious before my injury and I guess I only started looking at my body more negatively after I got injured, when I compare myself to when I was playing sports to now, I definitely viewed it more negatively and after retirement definitely more body conscious, I started noticing I lost muscle and probably gained a few pounds as well like clothes weren't fitting the same as they did before probably because of muscle lost too." "I was (name) the athlete or (name) the rugby player, I was proud, I got larger arms and big legs, it was nothing I was worried about but after, I'm not active anymore, I was just hyperaware about my proportion sizes or just how my legs looked."
Coping Mechanisms		
Adaptive Coping Mechanisms (8/8)	"Distraction would have been one of coping mechanisms, just not thinking about it, with all the other things I had to do like school and like the clubs and all that, it's just like I didn't think about it, I have other things I gotta focus on, I got midterms coming up, I got projects and assignments." "Focused on working as much as possible, being able to talk to my family more often was nice, maintaining some physical activity was definitely a way of dealing with not playing football anymore, spending more time with my friends like people that	"I kind of just started to look at everything and especially because I had to plan for graduation, I started to just take that energy and turned it more positive, like what kind of opportunities are out there? What schooling should I take next? I just tried to control the things I could and make the best as possible." "I definitely tried to figure out what else I liked, a lot of jumping around in jobs, a lot of jumping around in courses, online courses and internships."

	I didn't play a sport with, it was nice to just get that different social dynamic."	
Physiotherapy (4/8)		"The therapist I had post-surgery was provided by the school and since they were busy managing multiple teams and athletes, it felt like they didn't have time to make my recovery a true priority. The therapists I saw outside of school were more dedicated to taking a full history and developing a plan for me that fit my current lifestyle and would help bring me back to normal fitness standard." "I went to physiotherapy while I was injured 'cause it took a while from the time I got injured to when I got surgery so I was going to go regularly to just make sure everything was okay, to keep the mobility up and then post-surgery I did physio for about 6 weeks and then I moved so, I stopped physio for a couple of months"
Remain a Part of the Team (4/8)	"You're not in the same role, it was like, I'm doing this now as a profession, so I'm stepping out of that like yes, I'm your friend but I'm not your teammate anymore though I am a part of the team, it's not on the same level. It was great to see the girls again, but I wasn't as social with them as I was when I was a player, that social contact with them decreased completely 'cause I was only there for practices and games." "I wouldn't say that I was super active in terms of being involved with the team still, but I would still go to the occasional game and I think that occasional game would just kind of keep me like, it was enough I guess to	"It felt great, I felt I was still connected to the sport in that sense, I was doing stuff like prepping snacks for away games, when they went to Brock, I was waiting outside the bus and handed everyone a treat when I got on and I was still a part of team parties, home games I stood on the sidelines or in the stands and I did that more of just self-preservation." "I just kind of felt left out, it's not that I didn't wanna be around, I just didn't feel like it was my place anymore to be there, it felt uncomfortable to go to events like I thought people would be probably wondering why someone that doesn't play anymore is still hanging around."

	satisfy my interests in terms of still being able to see everything happen and still being able to congratulate everyone afterwards was always great."	
Maladaptive Coping Mechanisms (4/8)	"I did get to a point, my breaking point, in my fourth year, where my mental state was really shot and I was heavily contemplating suicide and I almost actually did it but after that it started to improve again, where I'm not in that low point"	"It was kind of just like let me have these snacks, or let me indulge in these foods I couldn't when I was training, I was like okay, I don't have a game, I'm gunna go to McDonalds and get like two meals and ice cream." "I didn't mind getting away (by smoking marijuana) for a second but didn't want to do that forever."
Social Support		
Positive Forms of Social Support (8/8)	"There were a few others on the team that were going through it with me, I talked to them, I talked to my roommates a bunch, friends on other sports team that were also gunna be graduating that year, kind of going through it with somebody else was definitely helpful that you know that you're not alone." "She (my mom) made sure it was a decision I was comfortable with and she always told me that no matter what my decision was, she wasn't gunna think differently of me, she wanted me to be successful in football but ultimately she just wanted me to be successful in whatever I had aspired to do, I think that definitely helped a lot when kind of changing gears and focusing on different things."	"I kind of went to him (my mentor) about everything because he was a past rugby player who went through the same thing of just an earlier retirement, he gave me guidance and I had deep conversations that were therapeutic to me because it was nice to talk to someone who knew where I was coming from." "I had my friends outside of sports like we did other things together that I wouldn't do with my friends that I played my sport with, I guess it was comforting having those other friends and different experiences with them and different things that bonded us."
Negative Forms of Social Support (7/8)	"At times, you feel like you would like for someone to kind of reach out but I also realized that at the same time you know,	"It was disappointing, I wasn't too close with my coach in my later years 'cause we got a new coach my senior year so I wasn't too

	that's not really how the football teams works for the most part so I was prepared to kind of push on regardless of not having been asked how I was dealing with anything." "I wouldn't say I had the best relationship with my last coach, we didn't dislike each other but when you stop playing for them, they kind of feel betrayed, they don't hate you for it but it changes the dynamic like I wouldn't want to go talk to them because it would be uncomfortable."	surprised but it was disappointing." "Not to say, I expected it but I didn't expect anything from them (coaches) either, they weren't good coaches off the field so I wouldn't want to talk to them and I doubt they'd want to talk to many of us off the field and it was just a matter of learning to be okay with that, which didn't take long."
Themes from Involuntary Retirement Interviews		
Rediscovery (4/8)		"I would say it's affecting my friend group, my friends before were mostly my teammates and that's what we had in common so right now I'd say I'm still in the process of redefining myself after my injury. And I still have the same goals job wise, before the injury I wanted to be a police officer and I'm still working towards that goal." "I rediscovered myself in a sense and I'd say there are five people I would keep in contact with on a regular basis. Also, I was at the end of my academic career, so I wasn't focused on school, more so on my professional career afterwards and I ended up getting involved in tech and then subsequentially sales for a software company."
Physical Attributes *Physical Limitations (4/8)*		"If I walk for too long and I'm not wearing shoes that support my knee, my knee will swell up a

	little bit so now I have to think about all the activities that I do, even if I wanna take the dogs somewhere, am I wearing the right shoes? Should I put on my knee brace to be safe?"
	"Six months after surgery I wasn't able to run, lift heavy weights or anything so right now, I'm working towards doing that again but I'm still facing limitations."
Mind and Body Dualism (3/8)	"After I actually sustained the knee injury, I was still trying to work with an athletic therapist on a tape job, I'm like hey I can't turn right but can you tape my knee in this position where I can play through it? And I did that for a little bit with practicing and that probably made my injury honestly worse and needing surgery because I was trying to suck it up"
	"Normally you're in control of what pain you can and cannot handle but when someone, when a doctor tells you, you're going to need surgery to have your injury fixed, you know, you are not in control anymore."

Appendix I

University of Victoria

BEHAVIOURAL MEDICINE LAB UVIC

Consent Form

"The Psychosocial Effects of Athletic Retirement on Competitive and Elite Athletes"

You are being asked to take part in a study titled **"The Psychosocial Effects of Athletic Retirement on Competitive and Elite Athletes".** We are inviting former athletes ages 18 years and above who retired from their desired sport through voluntary (your decision to retire) or involuntary (career ending injury) retirement within 1 to 30 years to participate in this study. This study has been reviewed by the University of Victoria Ethics Committee and has met the rigorous requirements for ethical approval.

One of the primary consequences of athletic retirement whether it is voluntary or involuntary is the emotional response the athlete has over their career ending, followed by the transitional demands of retirement and the psychosocial effects. Research has shown athletes who voluntarily retire are more likely to experience a smoother transition into retirement, increase in mental health, decrease in mood disturbances, less likely to experience identity loss or confusion, utilization of positive coping mechanisms and social support than their counterpart who have sustained a career ending injury. Possible similarities may arise between financial planning or lack of as well as physical attributes. Furthermore, we hope that you will help us learn more about mind and body dualism and the various other domains of athletic transition into retirement.

Purpose of this Project

In this study, we will be examining the psychosocial (psychological, physiological, identity, mental health, financial challenges, coping mechanisms and social support) effects of athletic retirement in former athletes. We will be comparing and contrasting the positive and negative effects of voluntary and involuntary retirement.

What do I have to do to participate?

1) First, we ask that you sign this consent form for the questionnaire. If you decide to part take in the virtual interview, I will review the contents of the consent form with you at the time of the interview and confirm your verbal consent.

2) We then will ask you to fill out an online questionnaire provided through UVIC Survey Monkey to assess the different avenues of athletic retirement. The questionnaire includes demographics such as ethnicity, education, age etc., athletic retirement, athletic identity, mood and feelings, coping mechanisms, life satisfaction, mental health, body esteem, physical activity and lastly, physical attributes. In total, the questionnaire will take 20-30 minutes.

3) After the completion of the questionnaire, you will have the option to take part in a UVIC hosted skype or UVIC hosted zoom call or telephone interview to provide more detail about your

athletic retirement. If you decide to part-take in the interview, it may span from 30 minutes to 60 minutes depending how detailed you are in your responses during the conversation.

Inconvenience, Risks, and Benefits

There are some risks that may arise by taking part in the present study such as the negative emotions about your transition into retirement. You also may be inconvenienced by time to participate in the study. If you are uncomfortable with participating in the present study, you may withdraw with no questions asked. Some of the questions on the questionnaires may ask you about sensitive information (such as your well-being, mental health, mood disturbances, negative coping behaviours and social support). If you feel any type of emotional or psychological distress from the questionnaire or interview, a list of mental health resources is listed at the end of the consent form on page 4, for both national and provincial help line. Your responses are completely confidential, and you do not have to answer any questions you do not want.

The potential benefits of your participation in this research includes sharing your personal story of dealing with athletic retirement and the different challenges you had to overcome, as well as how this can help athletes who have been in similar situations to understand their emotions, how to overcome the trials and tribulations they may face due to voluntary and involuntary retirement.

Anonymity and Confidentiality

The information from the questionnaires, and interviews will be completely confidential during data analysis and publication of study results. Findings from this study will be presented at scholarly conferences and used for publication in journal articles as well as publicly posted on the library website "Uvic Space". All data will be published as group data, and any data kept separate will be identified by ID-number (no name). We will need your contact information in order to provide you with materials and collect materials. However, we can assure you that your confidentiality will be completely protected and only the research team will have access to your contact information. In terms of protecting the confidentiality of your data, the data file and completed questionnaires will be kept in a locked and secure environment on the University of Victoria campus at all times. Only the investigators will have access to the data. The online questionnaire data will be stored on a server for five years and then permanently deleted. Online copy consent forms will also be kept for five years and then they will be deleted.

Do I have to participate?

No, your participation in this study is completely voluntary and you have the right to withdraw at any time without consequence. If you decide to terminate your participation, your data will not be used and will be destroyed unless the study has already progressed to the analysis and writing-up stages.

If you have any questions or concerns about this study, please do not hesitate to contact either Riana Rajaram (Primary Investigator, Masters Student) or Dr. Ryan Rhodes (Supervisor). In

addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria.
Your implied consent indicates by completing and submitting the questionnaire and if you choose to participate in the interview, we require your **verbal consent.** YOUR FREE AND INFORMED CONSENT IS IMPLIED and indicates that you understand the above conditions of participation in this study and that you have had the opportunity to have your questions answered by the researchers.