
Electronic Thesis and Dissertation Repository

11-22-2018 11:00 AM

Factors that contribute to the process of reporting concussion symptoms experienced by Canadian Football League players

Daryl W. H. Stephenson
The University of Western Ontario

Supervisor
Johnson, Andrew M.
The University of Western Ontario

Graduate Program in Health and Rehabilitation Sciences
A thesis submitted in partial fulfillment of the requirements for the degree in Doctor of Philosophy
© Daryl W. H. Stephenson 2018

Follow this and additional works at: <https://ir.lib.uwo.ca/etd>



Part of the [Sports Studies Commons](#)

Recommended Citation

Stephenson, Daryl W. H., "Factors that contribute to the process of reporting concussion symptoms experienced by Canadian Football League players" (2018). *Electronic Thesis and Dissertation Repository*. 5895.

<https://ir.lib.uwo.ca/etd/5895>

This Dissertation/Thesis is brought to you for free and open access by Scholarship@Western. It has been accepted for inclusion in Electronic Thesis and Dissertation Repository by an authorized administrator of Scholarship@Western. For more information, please contact wlsadmin@uwo.ca.

Abstract

Background: Concussions continue to be at the forefront of research today and are still an ongoing problem for athletes across sporting domains. Further investigation is warranted to achieve a greater understanding of concussions. **Purpose:** The purpose of this dissertation was to explore research related to sports-related concussions, how concussions affect athletes and those surrounding the athletes at all levels of sport, with a particular focus on Canadian Football League players and the underreporting of concussions. This dissertation also reviews qualitative research methodologies, and how they are applied within concussion research. **Research Questions:** a) What is my own personal relationship with concussions? In particular, what was my experience with the culture of the CFL while I was playing professional football, and later, during my transition out of professional football? b) What is the extent, range, and nature of the peer-reviewed qualitative research literature on concussions in sport? c) What factors contribute to the process of reporting concussion symptoms in Canadian Football League players? **Methodology:** I utilized an autoethnography to for the first question, a scoping review to address the second question, and a constructivist grounded theory study (in a sample of ten current and retired CFL players) to approach the third question. **Findings:** Within the autoethnography presented herein, several factors were identified as influencing the way I interpreted my experiences throughout my playing career, and my subsequent transition from professional sport. The scoping review of qualitative research in sport-related concussion suggested that qualitative research is useful for exploring all levels and types of sports. It further suggested that qualitative methodologies provide researchers with a lens that can be used to view the athletes going through the concussions, and also the other people in their lives such as physicians, parents, coaches, care-

takers, teammates and equipment personnel. Different methodologies highlighted several different areas such as barriers to reporting concussions, lived experiences, media portrayal of concussions, coping strategies and effected relationships. Finally, the empirical data collected within the grounded theory study that formed the primary study within this dissertation suggested several factors that influenced the underreporting of concussions in the CFL, within three contexts: a) premeditated thoughts during the pre-game b) assessing the hit on the field and c) during the recovery process of a concussion.

Implications: Findings show the current state of concussion research and highlights several factors that influence professionals to underreport their concussions. Implications for future research are discussed.

Keywords: Concussions, qualitative research, underreporting, constructivist grounded theory

Co-Authorship Statement

This doctoral dissertation consists of three complementary manuscripts that represent the collaborative work of researchers and co-authors. The primary contributor is Daryl W. H. Stephenson, who identified and researched the topic, designed the studies, collected, analyzed and interpreted the data, and drafted the manuscripts. Chapter 2 is an autoethnography, and as such is a sole-authored publication. Chapter 3 was co-authored by Dr. Andrew M. Johnson, Dr. E. Anne Kinsella, and Dr. Jeffrey D. Holmes, and was submitted as part of my candidacy examination for this PhD. Chapter 4 represents the primary publication within this dissertation, and was co-authored Dr. Andrew M. Johnson, Dr. Anne E. Kinsella, Dr. Jeff Holmes, and Dr. Lisa K. Fischer. These co-authors supervised the research, provided insights into the research design and the findings, and will review and edit the final manuscripts prior to publication.

Acknowledgements

I would like to thank the players of the Canadian Football League (CFL) for their help in collecting data. I would also like to thank the CFL league management and the Canadian Football League Players Association (CFLPA) for their assistance and support in completing this study.

To my supervisor Dr. Andrew M. Johnson, I would like to thank you for the very important role your guidance played throughout my dissertation and in my academic career. Your intelligence and positive outlook were imperative to any success I had. Committee members Dr. E. Anne Kinsella, Dr. Jeff Holmes, and Dr. Lisa K. Fischer I would like to thank you for providing the important insights you each possessed to complete my research in the most impactful and proper way possible, and with all the improvements you added to this dissertation.

I would like to thank the lab members who have provided help along the way through editing rough drafts and conversations about research. I was very lucky to have such an inspiring and helpful lab.

I would also like to thank Dr. Deborah L. Rudman, who provided me with many great insights and conversations throughout my research.

I would finally like to thank and acknowledge my family for the support and encouragement they have given me over the years. I cannot express how happy I am to have such a wonderful support system around me.

Table of Contents

| | |
|---|-----|
| Abstract | ii |
| Co-Authorship Statement | iv |
| Acknowledgements | v |
| Table of Contents | vi |
| List of Tables | x |
| List of Figures | xi |
| List of Appendices | xii |
| Chapter 1 | 1 |
| 1.1 What is a Concussion? | 1 |
| 1.1.1 What Causes Concussions? | 2 |
| 1.1.2 What are the Symptoms of a Concussion? | 3 |
| 1.1.3 What is the Recovery Process Like for a Concussion? | 3 |
| 1.1.4 What are the Current Protection Strategies for Concussions? | 6 |
| 1.1.5 What are Current Return-to-Play Guidelines for Players with Concussion? | 7 |
| 1.1.6 What is Chronic Traumatic Encephalopathy? | 10 |
| 1.1.7 What is Second Impact Syndrome? | 11 |
| 1.2 Have Athletes Traditionally Been Underreporting their Concussion Symptoms? | 11 |
| 1.3 Reflexivity on my Constructivist Perspective and the Use of Grounded Theory as a Methodology | 14 |
| 1.4 Overview of Dissertation | 16 |
| 1.5 References | 16 |
| Chapter 2 | 23 |

| | |
|--|----|
| 2.1 Overview | 23 |
| 2.2 The Draft | 26 |
| 2.3 Rookie Life | 27 |
| 2.4 Concussion/Injury | 29 |
| 2.5 Planning to Retire | 33 |
| 2.6 Back to Being a Rookie | 35 |
| 2.7 Emotional Roller Coaster | 37 |
| 2.8 Identity | 39 |
| 2.9 References | 42 |
| Chapter 3 | 45 |
| 3.1 Introduction | 45 |
| 3.2 Method | 49 |
| 3.2.1 Research Question for Scoping Review | 49 |
| 3.2.2 Identifying Relevant Studies | 50 |
| 3.2.3 Study Selection | 50 |
| 3.2.4 Charting the Data | 51 |
| 3.2.5 Collating, Summarizing, and Reporting the Results | 53 |
| 3.3 Results | 53 |
| 3.3.1 Descriptive Numerical Summary | 53 |
| 3.3.2 Categories and Related Themes | 54 |
| 3.3.2.1 Media and Social Portrayal of Concussions | 54 |
| 3.3.2.2 Barriers to Concussion Disclosure | 57 |
| 3.3.2.3 Coping Strategies and Unique Experiences | 59 |
| 3.3.2.4 Parents and Care Takers | 61 |
| 3.3.2.5 Coaches, Sport Clinicians, and Equipment Personnel | 62 |

| | |
|---|-----|
| 3.4 Discussion | 65 |
| 3.4.1 Strengths and Limitations | 68 |
| 3.4.2 What the Study has Added | 68 |
| 3.5 References | 68 |
| Chapter 4 | 75 |
| 4.1 Introduction | 75 |
| 4.1.1 Purpose of Study | 77 |
| 4.1.2 Research Question | 77 |
| 4.2 Methods | 77 |
| 4.2.1 Data Collection | 79 |
| 4.2.2 Data Analysis..... | 80 |
| 4.3 Participants | 83 |
| 4.3.1 Sample Size | 84 |
| 4.3.2 Recruitment | 84 |
| 4.4 Instruments and Tools | 85 |
| 4.4.1 Quality Criteria | 85 |
| 4.4.2 Ethical Considerations | 85 |
| 4.4.3 Claim of Bias..... | 86 |
| 4.5 Findings | 88 |
| 4.5.1 Context A – The Pre-game Thoughts | 88 |
| 4.5.2 Context B – Self-Assessing the Symptoms After Contact | 94 |
| 4.5.3 Context C – Recovery and Returning to Play | 117 |
| 4.6 Discussion | 127 |
| 4.6.1 Reducing the Uncertainty | 130 |
| 4.6.2 Limitations | 133 |

| | |
|-------------------------------|-----|
| 4.7 References | 134 |
| Chapter 5 | 138 |
| 5.1 Emerging Insights | 138 |
| 5.2 Future Directions | 139 |
| 5.3 Concluding Thoughts | 140 |
| 5.4 References | 141 |
| Appendices | 142 |
| Curriculum Vita | 148 |

List of Tables

| | |
|--|----|
| 3.1 Inclusion and Exclusion Criteria | 52 |
|--|----|

List of Figures

| | |
|--|-----|
| 1.1 Concussion Awareness and Management | 4 |
| 3.1 PRISMA Flow Diagram for the Scoping Review Process | 53 |
| 4.1 Context A..... | 89 |
| 4.2 Context B | 95 |
| 4.3 Context C | 117 |

List of Appendices

| | |
|---|-----|
| Appendix A: Tables for Scoping Review | 142 |
| Appendix B: Ethics Certificate | 145 |
| Appendix C: Interview Guide | 146 |

Chapter 1

1.1 What is a Concussion?

A concussion is the result of physical trauma to the brain, causing altered cognitive function (Anderson, Heitger, & Macleod, 2006). This trauma leads to a complex pathophysiological process that can result in a variety of symptoms that may vary substantially in severity across individuals. The Berlin concussion consensus statement describes a sport related concussion (SRC) as “a traumatic brain injury induced by biomechanical forces” (McCrorry et al., 2017). McCrorry et al. (2017, p. 839) also lists several common features that help clinically define the nature of concussions:

- *SRC may be caused either by a direct blow to the head, face, neck or elsewhere on the body with an impulsive force transmitted to the head.*
- *SRC typically results in the rapid onset of short-lived impairment of neurological function that resolves spontaneously. However, in some cases, signs and symptoms evolve over a number of minutes to hours.*
- *SRC may result in neuropathological changes, but the acute clinical signs and symptoms reflect a functional disturbance rather than a structural injury and, as such, no abnormality is seen on standard structural neuroimaging studies.*
- *SRC results in a range of clinical signs and symptoms that may or may not involve loss of consciousness. Resolution of the clinical and cognitive features typically follows a sequential course. However, in some cases symptoms may be prolonged.*

Cantu and Hyman (2012) described concussion as “a shaking of the brain inside the skull that changes the alertness of the injured person” (p. 2). Concussions can result in a wide range of clinical symptoms, and may or may not involve a loss of consciousness. There exists an ambiguity of the definition of concussion and post-concussion symptoms that clinicians, athletes, coaches, parents and trainers use, and slang expressions are frequently used within lay literature and the media including “being dinged” or “having one’s bell rung.”

Concussion has also been described as an injury that is “part of the game” (Snedden, 2013). These terms and expressions downplay the severity of concussions, and the recovery

prognosis of the individual. Similarly, there are a variety of terms that tend to be used interchangeably with “concussion”, such as mild head injury, mild traumatic brain injury, and cerebral concussion (Anderson et al., 2006). Therefore, having a clear understanding of concussions and related symptoms from the players, trainers, coaches, and physicians may result in faster, more accurate recognition of the concussion (Snedden, 2013).

The remainder of this dissertation will focus on “sports-related concussions.” The specific injury mechanism is important – not only because the context of the injury is significantly different from (for example) motor vehicle accidents, but because the frequency of repetitive head trauma in a sport such as football is thought to pose unique risks. Furthermore, collisions in sports involve much lower acceleration-deceleration forces than do motor vehicle accidents (Malcolm, 2009).

1.1.1 What Causes Concussions?

Depending on the population, the most likely events to cause a concussion are vehicle accidents, falls, sports and recreational activities, and assaults (Anderson et al., 2006). Among sports-related concussions for males, football has the highest incidence of concussions, as football is one of the only sports where major head impacts are (inarguably) part of the game (Robbins & Conidi, 2013). Although teaching safe tactics has risen in popularity in youth football (e.g., "Heads Up Tackling" programs, that teach players to keep their heads out of play as much as possible), there will always be an elevated risk of head impacts in football, as compared with other sports, simply due to game mechanics (Football Canada, 2015). There is no prevention technique that will prevent blindside hits that they do not see coming, for falls where the head impacts the ground, for accidentally colliding helmets with a teammate, or for large body impacts that result in concussion. Football is a collision sport. Even if you removed

tackling and blocking from football, there are ample opportunities for colliding with other players (or with the ground), and so the total prevention of concussions is an unrealistic goal. What can be affected, however, is the treatment and management of concussion – and it necessarily falls to players, trainers, physicians and coaching staff to carefully monitor play, and implement evidence-based interventions and protocols when a concussion is suspected.

1.1.2 What are the Symptoms of a Concussion?

There are many symptoms that suggest that a concussion has occurred. According to Anderson et al. (2006), these symptoms may include somatic, cognitive or behavioral/affective symptoms. It is, however, hard to predict the end result from the initial impact. This is why it is imperative that athletes and physicians know exactly the symptoms that can occur, so that they can closely monitor and report them (Tator, 2013).

Concussion signs and symptoms include confusion and disorientation, loss of consciousness, nausea and vomiting, loss of balance, double vision or fuzzy vision, ringing in the ears, slow or slurred speech, seeing “stars”, feeling stunned or dazed, and emotion or personality changes. These symptoms are posted on a large concussion awareness and management poster (CFL.ca Staff, 2011) in each locker room in the league, along with the statement that “Concussion is a Brain Injury.” This poster is presented in Figure 1.1.

1.1.3 What is the Recovery Process Like for a concussion?

Depending on the severity of the trauma, concussions can have a very prolonged recovery (McCrory et al., 2017). Concussion recovery is a process that can have persistent symptoms for over 12 months for some (5-15%), and early physiological symptoms such as headaches can turn into psychopathological issues such as anxiety and hypersensitivity

(Anderson et al., 2006). According to Anderson et al. (2006) this is due to microscopic physiological changes that occur post-concussion that can have delayed secondary injury implications.

Figure 1.1. Concussion Awareness and Management (CFL.ca Staff, 2011).



CONCUSSION

AWARENESS & MANAGEMENT



THINGS YOU NEED TO KNOW

CONCUSSION: *Watch for ANY of these Signs & Symptoms*

| | | | |
|-------------------------|------------------------|----------------------------|----------------------|
| • Loss of consciousness | • Nausea or Vomiting | • Feeling slowed down | • Confusion |
| • Seizure or convulsion | • Dizziness | • Feeling like "In a fog" | • Drowsiness |
| • Amnesia | • Blurred vision | • "Don't feel right" | • More emotional |
| • Headache | • Balance problems | • Difficulty concentrating | • Irritability |
| • "Pressure in head" | • Sensitivity to light | • Difficulty remembering | • Sadness |
| • Neck Pain | • Sensitivity to noise | • Fatigue or low energy | • Nervous or Anxious |

CONCUSSION: *Management & Rehabilitation*

An athlete should never return to play while symptomatic.
When a player shows ANY SYMPTOMS or SIGNS of a concussion...

| | | |
|--|--|--|
| The player SHOULD NOT be allowed to return to play in the current game or practice. | The player SHOULD NOT be left alone, regular monitoring for deterioration is essential. | The player SHOULD be medically evaluated. |
|--|--|--|

CONCUSSION: *Guidelines for Coaches, Players, Parents & Officials*

- Concussion is a Brain Injury
- You do not have to lose consciousness to have a concussion
- Symptoms are often subtle
- Wear properly fitted protective equipment
- **The head (helmet/facemask) should never be used to make initial contact with another player**
- A concussion may be caused by a direct blow to the head, face, neck, or anywhere else that causes a severe and sudden movement to the head/neck
- Medical Clearance by an appropriate physician is mandatory before return to play

CONCUSSION: *Follow these 6 steps under Medical Supervision Before Returning to Play.*

Players must be asymptomatic for 24 hours **BETWEEN** each step.

- 1.** No activity, complete rest. Once asymptomatic, proceed to step two
- 2.** Light aerobic exercise such as walking or stationary cycling
- 3.** Sport-specific training. (e.g. running in football, skating in hockey)
- 4.** Non-contact training drills. May start progressive resistance training
- 5.** Full-contact training after medical clearance
- 6.** Game Play

Visit thinkfirst.ca for more information | **CFL.ca**








Brain function is thought to be affected, if only temporarily, by concussion (McCrorry et al., 2017). A concussion does not have to be severe to affect brain function – mild head trauma has been shown to produce neural damage. This is, potentially, a large concern for football players, as practices and games usually involve having players take multiple impacts to the head, as well as hard body impacts, that can result in brain damage (Crisco et al., 2010).

Concussion symptoms can linger, and can change the life-course trajectory of a once healthy football player (Furness, 2016; Patricios et al., 2018). In December of 2005, Andre Waters, former Pro Bowl safety for the Philadelphia Eagles of the NFL, took his own life suddenly. Two years later, on January 18th, 2007, the neuropathologist and researcher Bennet Omalu who performed an autopsy on Water's brain was publicized saying that "Waters brain resembled that of an octogenarian Alzheimer's patient" and that this was likely caused by the 15 (or more) career concussions that Waters had received (Schwarz, 2007). In 1994, the Philadelphia Inquirer had reported Waters saying that he had lost count of the number of concussions that he had sustained (Goldberg, 2008). There is no consensus as to how many concussions a player can have before they should be told that they can no longer play, and it is unlikely that such a number can be derived, given the highly individualistic nature of concussions. Thus, retirement from professional sports occurs at the discretion of the individual player (Goldberg, 2008). Mike Webster, a former hall of fame player that played for 17 seasons in the NFL was diagnosed with dementia that was thought to be secondary to the brain damage he had suffered during his career. He was homeless for five years, as a result of this condition. He has since been diagnosed with chronic traumatic encephalopathy (CTE), presumably secondary to repeated concussions received over his 17-year NFL career (Moe, 2014). Webster died at the age of 50 (Furness, 2016; Moe, 2014).

There are several factors that may account for persistent post-concussion symptoms, including “medication-induced fatigue, headache of migrainous or cervical origin, benign paroxysmal positional vertigo, deteriorated sleep hygiene, alcohol use, and depression” (Anderson et al., 2006, p. 351). In a study by Guskiewicz et al. (2005), NFL players had earlier onsets of Alzheimer’s disease, and players with three or more concussions were five times as likely to report mild cognitive impairment, showing a threefold prevalence of memory problems as compared to players who retired without any previous history of concussions.

1.1.4 What are the Current Protection Strategies for Concussions?

Part of the CFL concussion prevention strategy is a mandatory concussion seminar that takes place every year during training camp, where a concussion specialist provides concussion education to each team for approximately one hour (Bucholtz, 2013). Although these seminars present a lot of information, it still is up to the player to retain that information, and act on it when necessary. Football exacts a brutal physical toll, and players are typically left with multiple bumps, bruises, and pains after a game or practice. It is important that players know which impacts and injuries can have concussion effects.

In 2010, the SCAT2 standard protocol was introduced by the Canadian Football League for assessing concussions (CFL.ca Staff, 2011). In the CFL, players undergo baseline tests every season during spring training camp – a practice that began in 2010 using the IMPACT system (CFL.ca Staff, 2011). The potential exists, however, for players to purposely “under score” or “malingering” in pre-season testing – and this would hide potential concussions incurred during the season. Furthermore, most of these tests utilize the same procedures – and even the same answers – from year to year, and so players could be getting better at the tests, thereby reducing variability on the measures (which reduces their predictive power). Accordingly, a

heavy weight of responsibility rests on the player, to be transparent about their symptoms throughout the playing season.

Currently, CFL players wear several different types of helmets to protect their heads from trauma. As aforementioned, however, impact to the head is not the only source of concussion – impacts to the body can transmit force to the brain, and this may result in a concussion. Thus, protective helmets will never be able to fully protect a player from a concussion (Goldberg, 2008).

In sum, therefore, it is likely that there will probably always be concussions in football, owing to the way in which the game is designed, and the ways in which players play the game.

1.1.5 What are Current Return-to-Play Guidelines for Players with Concussions?

Most articles within the literature focus on methods of establishing appropriate “return to play” guidelines. Players need to be symptom free before returning to play in the CFL (CFL.ca Staff, 2011). Return-to-play protocols typically involve having athletes return to light exercise when the player feels as though he or she has been symptom-free for a week. If light exercise causes symptoms to recur, the player is required to sit out until they do not have symptoms again for a week. If the player has no symptoms after exercise, he is allowed to do further resistance training, and light field work. Once he has passed these stages, he will then be allowed to do more explosive football type movements, with a steady progression back into practice without contact. Practice with contact (the final stage in most protocols, before allowing the individual to return to full participation) occurs after the player has passed all the previous stages (CFL.ca Staff, 2011). Most authors and clinicians advocate a stepwise process for returning to full participation (Meier et al., 2015; Patricios et al., 2018), but at every step of the process, symptom reporting relies heavily on the integrity (and knowledge) of the player.

At any stage of the return to play process, a player could hide these symptoms from the trainers and physicians. There is no governing sanction like there is in boxing that has to clear an athlete to play after concussion, only trainers and doctors that are associated with the team make the final call on whether a player is cleared to play. And much (if not most) of this decision-making is based on the player's description of their symptoms (or lack thereof).

As reported by the Associated Press (2007), Ted Johnson, a football player formerly of the New England Patriots, was told to practice by his coach, despite the fact that he had sustained a concussion just four days prior. During this practice, Johnson had another concussion. He later played on other teams and sustained several more concussions. By the age of 34, Johnson had signs of Alzheimer's Disease, and was seeing effects of damage that was likely permanent, and progressive. Johnson later stated that although head coach Belichick later said that he had "made a mistake" in encouraging Johnson to practice so soon after his concussion, that he was partially responsible for this decision. He also noted that his reputation as an injury-prone player was an influencing factor in his early return to play (MacMullan, 2007).

Being a football player creates its own set of factors that contribute to players playing through injury. Players may be pressured by teammates, coaches and owners to "play through the pain" and return to full contact as quickly as possible after an injury. Tom Coughlin, former New York Giants head coach, has admitted to walking past players who were injured and saying "Oh, look at the sick, lame, and lazy" (Calandrillo, 2005). As Calandrillo (2005) notes, there can be conflicts of interest among owners, coaches, trainers, players, and even the team physician when it comes to the safety of a player. Consider, for example, the dual loyalty of the team physician to the employer and the athlete-patient. The physician wants to stay employed,

and so he or she may be forced to choose between decisions that benefit the employer, and decisions that benefit the long-term health of a player. There are similarly powerful social and economic forces that exist behind the scenes that could shape the behaviors of players.

Calandrillo (2005) suggests that one remedy for this would be to have the physicians hired by the player's union, and not the teams, so that they are loyal only to the players. Although this could work, players still need to accurately report their symptoms, so that physicians can facilitate an appropriate return-to-play. The CFL has the team trainers and physicians making the call for players returning to play and has also asked officials to report players with suspected concussions to the coaching or medical staff during games (CFL.ca Staff, 2011).

CFL commissioner Mark Cohon stated

“What we’re essentially doing is making sure we’re focused on player safety. What we’ve been doing for years now is putting the right protocols in place. We actually had protocols in place on our sidelines well before the NFL had them. We look at discipline, concussion protocols, education.” (Spencer, 2013).

Mark Cohon was also quoted as saying

“I am convinced that every concussion is being reported and dealt with. I trust our doctors. I trust our therapists. I trust our teams to report that.” (Bucholtz, 2014).

This is unlikely – but even if it is true that every concussion that is reported is being dealt with, the accurate reporting of concussions is still a pressing issue, with reports of up to 50% of high school football concussions going unreported (McCrea, Hammeke, Olsen, Leo, & Guskiewicz, 2004). The CFL has taken steps to increase concussion detection by having

someone constantly monitoring for big hits and targeting players to get sideline concussion tests during games.

1.1.6 What is Chronic Traumatic Encephalopathy?

One issue with concussions that has been receiving more attention is the development of a neurodegenerative condition known as chronic traumatic encephalopathy (CTE). CTE is thought to result from repetitive blows to the head, which accumulate over the careers of some athletes (Hazrati et al., 2013; Omalu, Hamilton, Kamboh, DeKosky, & Bailes, 2010). Football is a game that is built around contact, and during the course of a practice, game or season, players will take many impacts to the head that do not cause an immediate concussion. Individuals with CTE show an increase in tau proteins throughout the brain, although some have suggested that the significance of these markers is unclear at this time (Hazrati et al., 2013). These tau proteins wrap around blood vessels within the brain, disrupting normal functioning and causing nerve cells to die (Breslow, 2014). Several other biomarkers are currently being studied for their significance (Patricios et al., 2018). In a recent study of the brains of deceased NFL players, 76 of 79 were found to have brain disease (Breslow, 2014). CFL players have also been shown to have CTE, with Doug MacIver, Owen Thomas, Bobby Kuntz, Jay Roberts, and Dave Duerson all shown to have CTE after passing (Bucholtz, 2012). Not all players with a history of diagnosed concussions have, however, developed CTE, and so more research is needed to determine the factors that precipitate the development of CTE among professional football players (Hazrati et al, 2013).

In the CFL, players play two preseason games, 18 regular season games, and possibly three playoff games, with practices in between. The players are also taking harder impacts than they are used to (i.e., prior to entering the professional league), as players are bigger, stronger,

and more efficient hitters than they have grown up playing against. Although hits to the head are quite common, and do not always result in a concussion, there is evidence that these impacts may accumulate over careers, and lead to CTE (Hazrati et al., 2013; Omalu et al., 2010). The CFL took a huge step forward in combatting these issues by removing hitting from practices in 2018 (Naylor, 2017).

1.1.7 What is Second-Impact Syndrome?

As aforementioned, any concussion can be problematic for an individual. Potentially more problematic, however, is the effect of a second concussion that is sustained before the brain has recovered from the first (Snedden, 2013). These second impacts are may be difficult to prevent, as a player could receive an impact early in a game and not show many immediate signs or symptoms of a concussion, and then sustain a second impact later in that same game. Second impact syndrome can occur between (not just within) games. This again underscores the importance of player education, both with regards to identification of symptoms, and the importance of reporting even less severe concussion symptoms.

1.2 Have Athletes Traditionally Been Underreporting their Concussion Symptoms?

Although education is important, ambiguity in concussion definitions, and intentional underreporting (by both coaches and players), contribute to the under-reporting of concussions (Snedden, 2013). Although caused by physical trauma, concussions are an invisible injury that leaves little to no visible physical evidence. Assessment is not as simple as testing for swelling, pain, or strength, but rather, requires an evaluation of self-reported symptoms by the athlete. As these assessments frequently occur on the sidelines during a game, a player could sway diagnostic decisions based on what they say to the physician. Steve Young, former San

San Francisco 49ers Quarterback knocked out of his career on his 7th concussion, was quoted as saying

“If my knee is hurt, everyone knows it, and I know it. And we can go deal with it, and shoulders. There's only one place in your body that you really don't understand, and people always say the brain is the last frontier.” (Kirk, Gilmore, & Wiser, 2013). In this case, an underreporting of concussion symptoms can cause the player to be admitted back into the game, now under life threatening conditions.

Casson, Viano, Powell, and Pellman (2010) looked at concussion in the NFL in a 12-year study and found an incidence rate of .38 to .42 concussions per team per game. In 83.5% of concussions reported, the player returned to play with no missed games or missed practices. The last time the Canadian Football League was studied for concussion reporting was in 1997, by Delaney, Lacroix, Leclerc, and Johnston (2000). According to this study, which involved administering an anonymous survey of all players, 44.8% reported experiencing symptoms of a concussion at some point during the season, while 69.6% of those concussed players had repeat concussions. But only 18.8% of those concussed players even recognized they had a concussion. Although the anonymity of the responses made it impossible to confirm or gather further data from players, the authors felt that this would make players feel less inhibited in their responses (Delaney et al., 2000). Subsequently, Bruce and Echemendia (2004) reported that athletes with a history of previous concussions reported more symptoms at baseline than athletes without a history of concussion. At two hours' post-concussion, the previously-concussed group reported fewer symptoms than the non-previously concussed group. However, after one week, the previously-concussed group reported more symptoms than the non-

previously-concussed group. This is an interesting finding that underscores the importance of concussion history in understanding the impact of concussion.

There are several proposed strategies to reduce the amount of underreporting or hiding of symptoms, including educating the athletes about concussion, specifically about symptom focused knowledge, as it has been shown to have an association with symptom reporting behaviors (Kroshus, Baugh, Daneshvar, & Viswanath, 2014). Focus groups with high school athletes have suggested that factors such as not wanting to stop playing, not wanting to look weak, and not wanting to let teammates down have all been influences on their underreporting of concussion symptoms. Kroshus et al. (2014) found that 29.3% of their high school hockey group strongly agreed that they would lose their spot in the lineup if they reported concussion symptoms, and only 5.1% strongly agreed that “My teammates will think I made the right decision” or that “I will be better off in the long run.” They suggested that this is part of the culture of sport and competition and is accumulated over a life-time of habits surrounding the reporting of other injuries. Kroshus et al. (2014) also noted that players were more likely to report some symptoms than others, based on their perceived severity, with the most frequently reported symptom being vomiting or nausea, and the most infrequently reported symptoms being “alterations of consciousness” (e.g., feeling “foggy”). Similarly, Meier et al. (2015) found that athletes self-reported significantly fewer symptoms to team athletic trainers using an ImPACT test compared to self-reported symptoms collected confidentially. Many of these cleared athletes still had symptoms 1-week post-concussion. Taken together, these findings suggest that it is important to determine sport- or population-specific concerns regarding concussion reporting, and then develop educational interventions that target these specific concerns. Recent research by Delaney, Caron, Correa, and Bloom (2018) on CFL players

showed the most common reason for players not reporting a concussion was due to the players having felt that they had suffered similar episodes in the past, and that the current episodes posed little or no danger if they continued playing. This study showed also showed how knowledge of concussions does not seem to be a factor any longer with CFL players.

1.3 Reflexivity on my Constructivist Perspective and the Use of Grounded Theory as a Methodology

Underlying my research is a constructivist perspective. This has an influence over my work, directly impacts my grounded theory study. With a constructivist lens, theories are reliant upon the researcher's interpretations and analysis of the data, to construct a shared understanding of the researched phenomenon (Gardner, McCutcheon, & Fedoruk, 2012). These shared understandings deny the existence of one interpretation of objective reality, and show how shared interpretations of phenomena are created, with social interactions in defined contexts leading to understanding how meaning is developed (Gardner et al., 2012).

Forms of power exist in many cultures, and the CFL is no different. Although power relations were not originally accounted for in grounded theory, this does not mean that grounded theorists, or constructivists, cannot integrate attention to power within their research (Charmaz, 2006). Issues of power with CFL players may be evident through coaches, owners, and team physicians. Within my interview process, it is my hope that the power relations between myself and participants will be decreased given my own past experiences with concussion and the CFL, and the possibility that the participants will see me as more of a peer and as someone who can relate to what they are going through.

I also suffered two concussions during my CFL career, and that gives me an insider perspective as to what it can be like to be a CFL player with a concussion. Being a CFL player

for six years afforded me important insights into the culture of the CFL that I believe will enhance my interpretive capacities.

From a constructivist research perspective, my values and my lived experience as a CFL player are not divorced from the grounded theory process (Ponterotto, 2005). It is important to present one's assumptions and preunderstandings to the fullest extent possible so that future readers can more accurately follow the interpretations and generation of theory rendered and to understand how these cognitive processes shaped their interpretations and constructions. Contrary to some criticisms of constructivist grounded theory, this is not an attempt to "avoid the work of confronting researcher bias", or to "avoid not having to account for another variable" (Glaser, 2002, p. 3). Instead, it is an attempt to do more work: to make my interpretations visible so that they become a variable, and to work toward the goal of transparency in the research process.

I cannot presume to know what all players go through during their concussion experiences. I recognize the need to aim towards consensus in interpretive constructions while remaining open to new possibilities (Guba & Lincoln, 1994). My reflexivity about my assumptions, preunderstandings and knowledge about the CFL and with concussions were for the purposes of aiding in data collection and analysis, and as a means of enhancing rapport and dialogue with the participants (Ponterotto, 2005). When I anticipated or had a hunch about relevant dimensions of the experience of a player/participant, I directed inquiries at that area to confirm. Some examples, drawn from my own autoethnography, might be the fear of looking injury prone to a new team, and gambling that it would work out, knowing there was a risk involved. I also inquired further with respect to information gathered through the literature and checked if those areas are relevant to participants. During this process, I needed to be careful

not to “force the data”, and I maintained the realization that I am constrained by the objects I am operating on (Kinsella, 2006). If an idea did not fit with my data, I tried to see it from every possible angle, but I did not try to force it to fit. Another technique that was used was comparing the findings to other pre-existing theories. This can lead to increased inspiration and may even challenge some of the already made abstractions, pushing one’s work beyond a pure inductivist approach (Goldkuhl & Cronholm, 2010).

1.4 Overview of Dissertation

This dissertation is organized into five related chapters. Chapter One is a literature review of concussions and an overview of constructivism and how it pertains to my research. Chapter Two is an autoethnography of my transition from professional football to academia while dealing with concussions which allows me to be transparent about my background and standpoint as a qualitative researcher on the topic of concussions. Chapter Three is a scoping review of the qualitative research that has been done on sport related concussions – it is presented as a means of providing context for the methodology that is used within this document, and was used to understand how qualitative research has been used to study concussions and how the present research fits within that research. In Chapter Four, Canadian Football League players were interviewed for the purpose of identifying factors that contribute to the process of reporting concussion symptoms experienced by Canadian Football League players. Chapter Five concludes with final thoughts about concussion reporting within the CFL.

1.5 References

Anderson, T., Heitger, M., & Macleod, A. D. (2006). Concussion and mild head injury. *Practical Neurology*, 6(6), 342–357. <https://doi.org/10.1136/jnnp.2006.106583>

Associated Press. (2007). Johnson says Pats coach ignored LB’s concussion. Retrieved

- December 18, 2018, from <http://www.espn.com/nfl/news/story?id=2751614>
- Breslow, J. (2014). 76 of 79 Deceased NFL Players Found to Have Brain Disease | League of Denial: The NFL's Concussion Crisis | FRONTLINE | PBS | Official Site. Retrieved December 18, 2018, from <https://www.pbs.org/wgbh/frontline/article/new-87-deceased-nfl-players-test-positive-for-brain-disease/>
- Bruce, J. M., & Echemendia, R. J. (2004). Concussion history predicts self-reported symptoms before and following a concussive event. *Neurology*.
<https://doi.org/10.1212/01.WNL.0000142088.32204.82>
- Bucholtz, A. (2012). Doug MacIver had CTE, which is further evidence CFL needs to be proactive on concussions. Retrieved December 18, 2018, from <https://ca.sports.yahoo.com/blogs/cfl-55-yard-line/doug-maciver-had-cte-further-evidence-cfl-needs-223659315.html>
- Bucholtz, A. (2013). U of A research leads to enhanced CFL concussion guidelines. *Health & Medicine Week*, 969.
- Bucholtz, A. (2014). Arland Bruce launches the first lawsuit against the CFL over concussions; more may follow. Retrieved December 18, 2018, from <https://ca.sports.yahoo.com/blogs/cfl-55-yard-line/arland-bruce-launches-first-lawsuit-against-cfl-over-200824630.html>
- Calandrillo, S. (2005). Sports Medicine Conflicts: Team Physicians vs. Athlete-Patients. *St. Louis University Law Journal*, 185–210.
- Cantu, R. C., & Hyman, M. (2012). *Concussions and our kids : America's leading expert on how to protect young athletes and keep sports safe*. Boston: Houghton Mifflin Harcourt.
- Casson, I. R., Viano, D. C., Powell, J. W., & Pellman, E. J. (2010). Twelve years of National

Football League concussion data. *Sports Health*.

<https://doi.org/10.1177/1941738110383963>

CFL.ca Staff. (2011). Working to promote concussion awareness - CFL.ca. Retrieved December 18, 2018, from <https://www.cfl.ca/2011/05/03/working-to-promote-concussion-awareness/>

Charmaz, K. (2006). *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis (Introducing Qualitative Methods series)*. *International Journal of Qualitative Studies on Health and Wellbeing*. <https://doi.org/10.1080/17482620600881144>

Crisco, J. J., Fiore, R., Beckwith, J. G., Chu, J. J., Brolinson, G. P., Duma, S., ... Greenwald, R. M. (2010). Frequency and location of head impact exposures in individual collegiate football players. *Journal of Athletic Training*, *45*(6), 549–559. <https://doi.org/10.4085/1062-6050-45.6.549>

Delaney, J. S., Caron, J. G., Correa, J. A., & Bloom, G. A. (2018). Why Professional Football Players Chose Not to Reveal Their Concussion Symptoms During a Practice or Game. *Clinical Journal of Sport Medicine*, *28*(1), 1–12. <https://doi.org/10.1097/JSM.0000000000000495>

Delaney, J. S., Lacroix, V. J., Leclerc, S., & Johnston, K. M. (2000). Concussions During the 1997 Canadian Football League Season. *Clinical Journal of Sport Medicine*, *10*, 9–14.

Football Canada. (2015). Safe Contact Now Mandatory for Football Canada Coaches. Retrieved December 18, 2018, from <http://footballcanada.com/safe-contact-now-mandatory-for-football-canada-coaches/>

Furness, Z. (2016). Reframing concussions, masculinity, and NFL mythology in League of Denial. *Popular Communication*, *14*(1), 49–57. <https://doi.org/10.1080/15405702.2015.1084628>

- Gardner, A., McCutcheon, H., & Fedoruk, M. (2012). Discovering constructivist grounded theory's fit and relevance to researching contemporary mental health nursing practice. *Australian Journal of Advanced Nursing, 30*(2).
- Glaser, B. G. (2002). Constructivist Grounded Theory? *Forum Qualitative Sozialforschung, 3*(3), 93–105. <https://doi.org/10.1111/j.1741-5446.2002.00409.x>
- Goldberg, D. S. (2008). Concussions, Professional Sports, and Conflicts of Interest: Why the National Football League's Current Policies are Bad for Its (Players') Health. *HEC Forum, 20*(4), 337–355. <https://doi.org/10.1007/s10730-008-9079-0>
- Goldkuhl, G., & Cronholm, S. (2010). *Adding Theoretical Grounding to Grounded Theory: Toward Multi-Grounded Theory. International Journal of Qualitative Methods* (Vol. 2010). <https://doi.org/10.1177/160940691000900205>
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (1st ed., pp. 105–117). Thousand Oaks, CA: Sage.
- Guskiewicz, K. M., Marshall, S. W., Bailes, J., McCrea, M., Cantu, R. C., Randolph, C., & Jordan, B. D. (2005). Association between Recurrent Concussion and Late-Life Cognitive Impairment in Retired Professional Football Players. *Neurosurgery, 57*(4), 719–726. <https://doi.org/10.1227/01.NEU.0000175725.75780.DD>
- Hazrati, L.-N., Tartaglia, M. C., Diamandis, P., Davis, K. D., Green, R. E., Wennberg, R., ... L., E. (2013). Absence of chronic traumatic encephalopathy in retired football players with multiple concussions and neurological symptomatology. *Frontiers in Human Neuroscience*. <https://doi.org/10.3389/fnhum.2013.00222>
- Kinsella, E. A. (2006). Reflective Practice Constructivist underpinnings in Donald Schön's

- theory of reflective practice: echoes of Nelson Goodman Constructivist underpinnings in Donald Schön's theory of reflective practice: echoes of Nelson Goodman. *Reflective Practice*, 7(3), 277–286. <https://doi.org/10.1080/14623940600837319>
- Kirk, M., Gilmore, J., & Wiser, M. (2013). *League of Denial: The NFL's Concussion Crisis* | FRONTLINE | PBS. United States: Frontline. Retrieved from <https://www.pbs.org/video/frontline-league-denial-nfls-concussion-crisis/>
- Kroshus, E., Baugh, C. M., Daneshvar, D. H., & Viswanath, K. (2014). Understanding Concussion Reporting Using a Model Based on the Theory of Planned Behavior. *Journal of Adolescent Health*, 54, 269–274.e2. <https://doi.org/10.1016/j.jadohealth.2013.11.011>
- MacMullan, J. (2007). "I don't want anyone to end up like me" - The Boston Globe. Retrieved December 18, 2018, from http://archive.boston.com/sports/articles/2007/02/02/i_dont_want_anyone_to_end_up_like_me/
- Malcolm, D. (2009). Medical Uncertainty and Clinician-Athlete Relations: The Management of Concussion Injuries in Rugby Union. *Sociology of Sport Journal*, 26, 191–210.
- McCrea, M., Hammeke, T., Olsen, G., Leo, P., & Guskiewicz, K. (2004). Unreported concussion in high school football players: implications for prevention. *Clinical Journal of Sport Medicine*, 14(1), 13–17.
- McCrory, P., Meeuwisse, W., Dvorak, J., Aubry, M., Bailes, J., Broglio, S., ... Vos, P. E. (2017). Consensus statement on concussion in sport—the 5th international conference on concussion in sport held in Berlin, October 2016. *British Journal of Sports Medicine*. <https://doi.org/10.1136/bjsports-2017-097699>
- Meier, T. B., Brummel, B. J., Singh, R., Nerio, C. J., Polanski, D. W., & Bellgowan, P. S. F. F.

- (2015). The underreporting of self-reported symptoms following sports-related concussion. *Journal of Science and Medicine in Sport*, 18(5), 507–511.
<https://doi.org/10.1016/j.jsams.2014.07.008>
- Moe, A. (2014). *Banging Heads - Media Portrayals of Injuries in Professional Football Before and After the Death of Mike Webster*. Clemson University. Retrieved from
https://tigerprints.clemson.edu/all_theses
- Naylor, D. (2017). CFL immediately ends full-contact practices - TSN.ca. Retrieved December 18, 2018, from <https://www.tsn.ca/cfl-to-announce-immediate-end-to-full-contact-practices-1.855515>
- Omalu, B. I., Hamilton, R. L., Kamboh, I. M., DeKosky, S. T., & Bailes, J. (2010). Chronic traumatic encephalopathy (CTE) in a National Football League Player. *Journal of Forensic Nursing*, 6(1), 40–46. <https://doi.org/10.1111/j.1939-3938.2009.01064.x>
- Patricios, J. S., Ardern, C. L., Hislop, M. D., Aubry, M., Bloomfield, P., Broderick, C., ... Raftery, M. (2018). Implementation of the 2017 Berlin Concussion in Sport Group Consensus Statement in contact and collision sports: A joint position statement from 11 national and international sports organisations. *British Journal of Sports Medicine*, 52(10), 635–641. <https://doi.org/10.1136/bjsports-2018-099079>
- Ponterotto, J. G. (2005). Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *Journal of Counseling Psychology*, 52(2), 126–136.
<https://doi.org/10.1037/0022-0167.52.2.126>
- Robbins, L., & Conidi, F. (2013). Stop football. Save brains: A point counterpoint discussion. *Headache*, 53(5), 817–823. <https://doi.org/10.1111/head.12104>
- Schwarz, A. (2007). Expert Ties Ex-Player's Suicide to Brain Damage - The New York Times.

Retrieved December 18, 2018, from

https://www.nytimes.com/2007/01/18/sports/football/18waters.html?_r=0

Snedden, T. R. (2013). Concept analysis of concussion. <https://doi.org/10.1111/jspn.12038>

Spencer, D. (2013). CFL: Cohon defends league protocol on concussions | The Star. Retrieved December 18, 2018, from

https://www.thestar.com/sports/football/2013/09/02/cfl_cohon_defends_league_protocol_on_concussions.html

Tator, C. H. (2013). Concussions and their consequences: Current diagnosis, management and prevention. *CMAJ*. <https://doi.org/10.1503/cmaj.120039>

Chapter 2¹

Transitioning out of Professional Football: An Autoethnography

2.1 Overview

Autoethnography is a tool used by researchers to describe and systematically analyze (graphy) personal experience (auto) in order to understand cultural experience (ethno) (Ellis, Adams, & Bochner, 2011). It is defined by Spry (1999), as “a self-narrative that critiques the situatedness of self with others in social contexts” (p. 710). Autoethnography is used to produce research that has personal roots, grounded in one’s own experiences, that branches these experiences out into a reading that has meanings that readers can learn from (Ellis et al., 2011). As a researcher, autoethnographers will tell and analyze stories that are made possible by being part of a particular cultural identity, while allowing for subjectivity, emotionality, and researcher influences and biases to be known within the research (Ellis et al., 2011). In the end, the reader should feel familiar with the culture, and understand why the researcher views things the way they do because of being in that culture. Using an autoethnography, I aim to use my personal experiences to describe and critique cultural beliefs, practices, and experiences (Adams, Ellis, & Jones, 2017). I hope to show the process of living through my experiences, the meanings I had in my struggles, and how I went about figuring out my process. Autoethnography may be used to produce research that has personal roots, is grounded in one’s own experiences, and that connects these experiences within a reading that has meanings that readers can learn from (Ellis et al., 2011). Autoethnography has the context of ethnographic field work and writing, while involving self observation and reflexive investigation (Marechal, 2010).

¹ A version of this chapter has been published as: Stephenson, D.W.H. (2017). Transitioning out of Professional Football. *Perseverance. CPA Sport and Exercise Psychology Section*. Issue 4. Pg. 8-9

According to Guba and Lincoln (1994), critical theory accounts for historical realism when referring to ontology. Historical realism factors in social, political, cultural, economic, ethnic, and gender values, that all develops ones virtual reality over time (Guba & Lincoln, 1994). I will discuss how I saw the reality I lived in, transitioning from professional sport to school, as being influenced by historical, structural, social, cultural, economic, and educational factors. As I follow along my transition to and from professional sport, I will be focusing on my perceptions of a CFL career, athletic identity and identity loss, doubts and fears during transition, perception of injury, and how I perceived my identity within each culture. The epistemology I take with being a critical theorist is one that takes a transactional and a subjectivist view, with value-mediated findings. This means that “me as a researcher,” and what I am researching are “interactively linked” (Guba & Lincoln, 1994, p. 110). Due to this linkage, it is assumed that my task, purpose, and methods will be influenced by my own personal values (Ponterotto, 2005).

I will be retrieving the information from memory, personal narratives, conversations with other athletes and coaches, journals of my thoughts since football ended, and journals taken of my thoughts and reflections during school. I will use hindsight to critique and reconstruct previously held constructions about the reality of a CFL player. With emancipation and transformation as the focus, “critical theory serves to disrupt and challenge the status quo” (Ponterotto, 2005, p. 129). According to Guba and Lincoln (1994, p. 114) generalizability within critical theory can only occur when social, political, cultural, economic, ethnic, and gender circumstances and values is similar across settings. As a CFL player for six seasons, I have insight into this culture of professional football players in Canada. This chapter is,

therefore, meant to allow readers into my world, and have them use this information to reflect on their own lives (Ellis et al., 2011).

Retiring from sport has been shown to come with many complications, including negative emotions, identity loss, crisis and distress (Park, Lavallee, & Tod, 2013). My transition to professional football, my transition between professional football teams, and then my subsequent transition to a new chapter focused on academics, all happened in a flash. My original aspirations were to play for as long as possible, and to make a career out of it. I knew at the time this is unrealistic and possibly a long shot, but I was confident there was a chance that I could do it. “Hey D-Train, what would you do if you had to stop playing?” a teammate and friend asked me while we were still in university. I responded by pointing at the Ambassador Bridge and said “jump”. I was joking, but I did not even like thinking about not playing, as thinking of another career made me think of the end of football. Football had always been my dream, and I did not want it to end. I didn’t even want to think about it ending, and I focused all of my attention towards it to make it last as long as possible. Perhaps it is like writing your own will, I knew the end was coming, but I did not want to think about it.

I now see this as a problem, as football is not usually a career. The average CFL career lasts 3.2 years (Black, 2011). I now think I should have looked at it the other way around. But thinking you could make a career out of it, like the NFL players that I saw on TV, that thought was amazing to me and worth the gamble. I see this now as a misconception. In 2009, Sports Illustrated reported that 78% of former NFL players have gone bankrupt or are under financial stress because of joblessness or divorce (Torre, 2009). That’s with making an NFL paycheck, which in comparison, dwarfs the salary of a CFL player.

I always felt lucky to be playing football as a job. It really is just a game, albeit a game that so interested people that it became possible to pay people to play. The fact that I live in a society that allows playing a sport to be a profession, and potentially a career, is (in my mind) incredible, and I am grateful to have been a part of it for as long as I was. I wanted to play forever, but in the back of my mind I always knew I was privileged to play for as long as I did. If I was born in another country, or at another time in history, I may not have even considered life as a professional football player to be a possibility.

2.2 The Draft

With the refreshing of the CFL website, my name appeared on the list, I was drafted and was moving to Winnipeg. I have been a football player since I was six years old, and I have always thought I would be a professional. After training camp was over, I was offered a practice roster spot. I was always a top player on my teams growing up, so at the time I struggled with the thought of not even making the active roster. I was very disappointed, but looking back on it now, it makes sense to me, and I was fortunate to be offered that position. But I decided to go back to school at Windsor and start a Master's degree, and play my final season.

So there I was, in the first graduate program meeting with all the other graduate students and their professors. I immediately worried, "what on earth am I doing here?" I was surrounded by people I recognized as very intelligent students in my classes. Having a central identity as an athlete negatively affected how I viewed myself amongst my peers, who I viewed as elite students. I was confident in my abilities as a football player, but in this graduate-level class setting, I struggled with my confidence. I also knew there was going to be conflict with me having to leave to play professional football, when the season started. My mindset was

“how do I make this work around football?” Football is a one-time chance, I can plan the rest of my life after football is finished. I did not see myself as a superstar in the classroom, with any natural talent for school, but I trusted my work ethic. When I look back now, I am glad I made the decision to stay in school. It allowed me to set up my life outside football and gave me more options for when the time came that football did end. I am also lucky that I did not let that mentality of “football first” prevent me from finishing my Master’s degree, as there were times it could have if I had not been committed to finish what I had started. How bad would I have felt now if I had dropped out of the program? I can only speculate, but I do know now I am proud of myself for not taking the easier way out.

My final game of my university career ended with a loss that put us out of the playoffs. It was an awful feeling, and I was very disappointed. But before I really had time to reflect, I received a text message on my phone from my CFL agent, alerting me that the Winnipeg Blue Bombers wanted to bring me back to play in a game the next weekend. Back up the emotional roller coaster I went, leaving graduate school after just 2 months. But it was “football first”, so I was off to Winnipeg for the last month of the season. Explaining that I was leaving school for a month, just two months into my Master’s degree, was not easy, and it almost resulted in my withdrawal from the program.

2.3 Rookie Life

A typical player does not have a lot of job security and there is a fear that every day was going to be your last. I can be released or traded at almost any moment, for almost any reason. Along with many others, I would be stressed checking the depth charts each morning before practice. This type of stress added up as emotional fatigue. If you are far down the list you could lose your current position, your spot on the team, or potentially your career. It always

caused me to reflect on where I thought I currently stood in the minds of the coaches and owners. Did I have such a bad game last week that they were looking to trade me, put me on the practice roster, or just flat-out release me? I was a rookie, was not secure in my understanding of how the business side of football was structured, and so I worried a lot. I did not feel I had power or control over my career, and I didn't feel as though I could just go and ask anyone directly. Later in my career, I did not worry as much about the little changes week to week, but I still understood that job security was low, our careers were fragile, and that the older you get the fewer chances you have to make mistakes. Over my six years of play, I had a whole new set of coaches every single year. It was always easy to come up with a legitimate reason to be concerned about my career.

This mindset of insecurity and transition doubt carried on with me into school. I feared saying the wrong thing in class, or doing poorly on assignments, thinking that they might possibly re-evaluate me as a PhD student and "release" me. "How secure am I?" is a constant thought. Again I am back to being a rookie without any knowledge of the structure of the business side of things in school. A professor jokingly said about being a PhD student that "once you are in, you pretty much have to burn the school down to get kicked out", however my football mindset reminded myself that I was "better off being worried". But am I really better off? Is being worried through insecurity useful as a tool for reaching my goals? I see other successful students raising their hand simply to say they don't understand something. I do not ask questions I do not know the answer to in class, out of fear that I might look incompetent, as that could lead to me getting cut in football. In professional football I thought you needed to be a player who figures things out quickly as they were quick to replace athletes they feel will jeopardize the team by doing an assignment wrong. I saw dozens of physically

gifted athletes, get sent home because they had a few mental mistakes. The culture of professional football made me feel like I always had to appear like I understood everything, and that they could trust me. I worried “will I lose my new job/position/school funding/spot in PhD program at any moment?”

2.4 Concussion/injury

From the time that I was 6 years old, until I was in my 4th year as a professional athlete, I did not worry about concussions. I did not worry that a concussion may become a potential problem for my football career or my life. In fact, I worried about knee injuries more than a concussion. My lack of knowledge about the concussion experience led me to make some problematic assumptions during my first experience.

I experienced two concussions midway through my professional football career, the first one being one month after finishing my Master’s degree. The first concussion happened during a preseason game. As weeks went by during my concussion recovery, I really started to worry. What are people thinking of me? Do they think I am faking it because there were no visible symptoms? Will I lose my spot? Will the recovery speed up? Do I even have a concussion anymore? The spiral of depressing thoughts, losing my career, not being able to retire on my own, and possibly leaving with concussion problems weighed heavily on me. I had a conversation with a coach before being allowed to coming back, and although unsure, I said I was fine. I am happy I said that now, but possibly because things worked out for me in the end. I trusted in the trainers and the staff, and at the time, the league had been very active about concussion safety (Hanson, 2011). This may not have been the case a few decades ago, and I feel fortunate to have suffered mine in a time where they were more cautious and aware. Concussion awareness in 1997 was poor. It was reported that 44.8% of the CFL players

reported concussion symptoms, however only 18.8% of these participants recognized that they had a concussion (Delaney, Lacroix, Leclerc, & Johnston, 2000). I, however, could not stop thinking about how everyone perceived me. It was my first year on that team, so I was still trying to make a good impression.

A concussion does not visibly swell, bruise, or bleed. I knew it was difficult for everyone to know how I felt, but I wanted them to see me as tough, and know that I would battle through the concussion like every other injury experience I had. Being durable or tough is often praised in professional sports, especially in football. I read everything I could about concussions and concussion recovery and took all the recommended supplements. Even though I knew the consequences, I was willing to gamble with my choice of returning from recovery without knowing if I was fully healed. I was more interested in how quickly I could recover so that I could get back to playing. I worried that I would be replaced if I did not get back to playing soon. This made me want to get better faster, and reflecting back, I should have been thinking about my long-term health and my longevity, not just my football career. I worried about getting another concussion for the rest of my career.

I felt, and still feel, that I was privileged to be able to play professional football, so it was hard not to feel lucky to be there, and I believe this “feeling of luckiness” added to the importance I placed upon playing as much as possible in the short window that I had. I also tried to look at myself from a coaching perspective. I knew that if I were a coach, I would not want to keep a player around who had an uncertain recovery from concussion - not only because of the risk to my team’s chance of winning, but also because of the risk to the health of the player.

After failing to recover as quickly as I would have liked, I became an emotional wreck. My personal life completely fell apart. I wanted to be completely alone. I was filled with fear, anxiety, depression, and anger. There was nothing I could do but tap into those emotions. I could not run to relieve stress due to restrictions of exercise in my recovery protocol, and there was ongoing fear of making it worse. I could not go outside without pain from the sun. I felt trapped. The worst part was that I did not know the exact reason for my emotional problems. Was I emotionally unstable from my concussion? Was I just fearful that my career was about to end, and I had no future plans? Was I troubled with my athletic identity loss? Was I stressed that I looked fragile to my teammates? Was the lack of control with my injury and life at the time causing me stress? Regardless, I just felt so caged that I wanted to explode. Looking back, I think it was all of the above, but I didn't have the perspective at the time to sort out what was going on.

In my final year of playing, I was fortunate enough to win the Grey cup with the Saskatchewan Roughriders. After this accomplishment, I felt like I had finally achieved one of my long-term football goals – to win a championship. Shortly after this, I was accepted into a PhD program. It was all coming together for me, and this felt like the right thing to do. I decided to retire from football and go back to school.

Now that I am in school, I see my brain as my new “body” in a sense. This is the tool that is going to bring me to my goals. My brain has been injured in the past. I have heard this a few dozen times in my career, “what is the difference between an injured athlete and a slow athlete on film? There is no difference.” That makes me question, what is the difference between an injured brain and an unintelligent brain on a paper, or test, or in a classroom? There

is no difference. Am I an injured athlete with a limp (my concussion) that just hasn't been noticed yet?

As an athlete, you worry that previous injuries are going to resurface and be your downfall. That thought of my brain injury resurfacing frequently reoccurs in my mind. Perhaps I think this way now, due to being in a school environment, where your brain is your primary tool for everything. I think concussed players need to factor health and longevity into their decisions as to when they should come back from a concussion, and not get caught up in the race to get back into the game. My complications align with research showing that lingering injuries and health problems prolonged adjustment periods after retiring, and that physical condition was an immediate concern for quality of life after sport (Park et al., 2013).

After making the transition to graduate school, I have worried about what people were thinking about me and if there was a stigma attached to concussions. As an athlete, I am accustomed to my job security being based on a coach's perceptions of my current abilities. This has translated into thinking about the relationships I have with professors, and the students that I teach. I do not feel like I am primarily a graduate student, having been praised most of my life as an athlete and not as a student, which adds to my insecurities.

I have not played football, or signed up for any contact recreational sports, since playing in my last professional football game - largely out of fear of sustaining another concussion. However, as academic milestones go by, and I continue to play other sports, I get more confident that my injury is behind me.

Bodily injuries sparked the same feelings that I experienced with my concussion: frustration, being held back, worry about my job and career, worry about my athletic identity, or worry that the injury will not recover properly. I worried mainly only about my immediate

future. Was this injury going to heal by the next practice or game? Could I just take pain killers and go play? My focus was on getting back into competition. I had heard from coaches, that “you can’t make the club in the tub”. I still have bodily injuries left over from football, and like my concussion, now it is not as important how quickly the injuries heal, but rather that they just eventually fully heal. I worry how these concussions and previous bodily injuries will affect my new career and quality of life in the future.

The culture of football promotes the use of supplements as lots of players are always looking for that legal edge to put them ahead of their competitors. I always took supplements for athleticism, but after my concussion used a study by Petraglia, Winkler, and Bailes (2011), on potential natural supplements for concussion protection, and I ate/supplemented as much as I safely could from it. There was almost always a purpose in the food that I chose. It was almost as if I attached doing well in practice, or not getting another concussion, with what food I was eating or what supplements I was taking. When I look back on all the trouble I went through, planning my meals and supplements, I am happy with what I did as I attribute part of my success and longevity to it. But I now worry that some of it was unnecessary and even a potential health risk, again worrying about longevity and health. All I really care about anymore is that I'm not overweight and unhealthy. I can see my attitude eventually changing, or at least I hope I can, because it used to mean so much to me to be in top shape, and I feel like I am losing my athletic identity.

2.5 Planning to Retire

I feel like I had more control over my retirement than some other players I knew. I was planning on what I would do when I retired from very early on, even though I did not like thinking about it. I could sense the fragility of a football career, and I witnessed multiple

athletes that I considered to be in a similar situation to myself get sent home, some because they were injured, and some without much of an audition. Athletes who voluntarily withdraw from football also feel they have more control over their situation, and have fewer negative emotions than players who are forced into retirement (Park et al., 2013). I have both of these going for me in my transition. I also have a large goal in mind, that I'm motivated to achieve, namely completing my PhD. My motivation for football was fading. Aligning with current research I was starting to proactively decrease the prominence of my athletic identity as retirement approached (Lally, 2007). I had a good year in Hamilton the year before I retired, starting on offence for the first time for the entire year. After re-signing for three years with Hamilton, I thought it would be more of the same for the rest of my contract. But after the first pre-season game, I was released and had to reflect on where I was. I was again reminded of the fragility of my career. I did not get much time to reflect, as I was called and signed that same day by Saskatchewan. My motivation had taken a blow, as well as my confidence. This did however spark me to get more proactive about my future after football. That year ended with us winning the Grey Cup, playing against the team that released me. This was a huge goal accomplished for me in my CFL career.

Contemplating the end, I really did not know what I would do. I would ask "Where would I go from here? What is my purpose?" Everything revolved around football. However, I took steps to help me in the future, such as applying for PhD programs. Once again, as I should have expected, my next transition out of football happened all at once. I was on the phone with Saskatchewan as they were releasing me, and I received an email on my phone. When I ended the call with Saskatchewan, I looked at what the email was, as I was trying to do anything to not think about what had just happened. I was accepted into the PhD program at Western. I

made the decision right then and there to not pursue my football career. I did not care to publicly retire, I just let my agent know I was retiring, and walked away from the game rather silently. I wanted to leave and not have to explain why, to just focus on a new goal and move on. In a way I am more of a “drop-out” than a retired player (Park et al., 2013, p. 36). This was the type of person I was however, I did not reach out to fans, or have facebook, or twitter, or any social media. I very much just wanted to play football, be around the team, make some money, and do my own thing.

Perhaps I just did not want to have to explain my decision to anyone, as a large part of me still wanted to play and worried I could be talked back into it, so I avoided the topic whenever I could. I avoided talking to any teams about playing in the future, and explained to my agent that I would not be pursuing any more playing opportunities.

2.6 Back to Being a Rookie

Though I know I did well in school and completed my masters while playing football, I could not help feeling out of place. I worry about answering questions thinking that that is how I will be seen. I worry about what skills I currently have that could help me in school or another career if I had to start one. As a player, I was accustomed to following directions, being told where and when to go. What do I do now that I am making all of the decisions? I am not confident in my intelligence in this new arena, and I feel a stigma attached to me by others, the stigma that football players are somehow less intelligent. Perhaps not surprisingly, I did not see football players in this way – but I thought that others might. I always thought players were smart and that it takes a quick thinker to be a professional athlete. Contributing to this was a worry that slang from the football culture might come out in academic settings, and reinforce this stereotype.

I approach academics in a lot of the same ways I approached football. Professors tell us to write something every day, and to practice writing. This parallels the requirement in football that you start training for the season early (and often). I should not expect to be able to write academic work or give solid presentations without preparing to do so. It is just harder to see mental improvements as noticeably as physical improvements. I noticed myself holding back from seeking help initially, more so than I would in football. In football I would ask questions frequently and look for ways to critique my own performance and have others critique me as well. In school I am more hesitant, even though I have heard a number of times already that the more people that can critique your work the better. Whether it's due to the lack of relationship with the people around me, being in a new environment, or my own insecurities, I worry that I may look like I don't know what I'm doing and that I shouldn't be here. In football I was confident about the questions

I asked, I wanted my coach's opinions concerning certain areas. In my PhD studies, I do not have that same sense of what exactly I could be asking, and who exactly I should be asking my questions of. I am back to being a rookie.

Right now it's been a few years since I completed my Master's degree. I still doubt myself, but I am quick to talk myself back into feelings of self-confidence, a trait I believe I brought over from my football career. There is no room for doubt in football, you need to make a decision and live with it.

I think that most people I knew, expected me to make an easy transition from football. Even talking to former teammates, they said that they always thought I would be fine and knew I would do well, even though I was never confident of that transition. Football was what I excelled at, and although I feel the need to excel again, I don't always know if that's possible.

But I always saw myself as an athlete first, who just worked hard enough in school to get my degrees. I trusted my work ethic, but not that I was just naturally smart and would be fine. In football, I worked hard, but I feel like I always had the necessary tools, such as size and speed, that others just did not have naturally. I am not as confident in my natural tools for graduate school. With each assignment done well, I can see my confidence growing. I think having early success in my life after football has gone a long way in improving my confidence. This is why having any concussion issue scared me even more as it was like I was trying out for a professional football team with a torn ligament nobody knew about.

2.7 Emotional Roller Coaster

On weeks that you have a game, you work hard all week, you stress a lot, there is an immense amount of anticipation, and the pressure is immense. When you win, you feel amazing, you have money in your pocket and you're in a new city. It is time to have some well-deserved fun. That whole professional football culture of having young athletes, making a good weekly pay check, and “living the dream”, accomplishing large goals together, helps create a culture that has many emotional highs and lows. I find myself now seeking these emotional highs in my current academic life. I work hard on an assignment or presentation, and when it is all done, I feel the need to celebrate. This aligns with research that suggests that some former NFL players were seeking these emotional highs in their new lines of work (Koonce, 2013). When I see CFL on television, or I think about it, I think about missing experiences that I could have had. I think “why did I stop?” I miss the feeling of being part of something bigger than myself, part of that social group that goes through so much together. These thoughts are depressing, thinking I will never experience those feelings again that made me feel so alive and

important. It is still very hard to watch a game on TV, or even think about playing, because sometimes I feel like I could still play.

I feel a lot of regret, like I could have done a lot better if I did things differently. There are always the “what ifs?” that enter my thoughts. My brain is still caught up in the race to be a better player, which always consisted of heavy self-critique. I revisit the thought that maybe I left too soon. The culture of football drives you to be competitive, and always have a goal in mind. Careers in professional sports are so dynamic that when you're done, you feel like you've just been plucked out of the whole competition. I still get competitive impulses, whether it is sparked by hearing an old song, or seeing football on TV, or just a random thought throughout the day.

At the same time there is a sense of relief. That race took a lot to stay competitive in. Being in that mindset can block your chances to reflect on your current situation. When I was in the Grey Cup, several veteran players and coaches that have been there before talked about taking time to soak it in. Take time to say “wow I'm here, I'm lucky, this is amazing”. There is always an achievable goal one notch higher than where you currently are. That really is what drives you to be your best. I wish I could go back and just reflect on how good my situation really was. There's always going to be people ahead of you in the game, but as a professional, there are even more players behind you, wishing they could be where you're standing. There are plenty of other athletes, willing and able to take your place.

I think it's important that I understand what goals I have already achieved, while not getting complacent. I find myself trying to connect these rules and values that I perceive to have guided my football career, with academia and other life tasks. There are many other intriguing and engaging competitions in life, many challenges, and I'm starting to see that more

and more, the longer I'm away from the game. It aids me mentally to be in a PhD program, feeling like I am in a valued spot again. It has been shown that educational involvement and career planning were positively correlated with post-sport life adjustment among college athletes, and that educational status influenced short-term and long-term adjustment after retirement (Park et al., 2013).

2.8 Identity

I put a huge amount of effort into learning skills and knowledge about the game that I may never use again. Sometimes it feels like I wasted time and effort that could have gone into something that was more important and lasting in my life. Reflecting on these thoughts, if I did not put that time and effort in, I would not have these good memories of football. I have good memories, because of how it turned out in the end for me. Having won a Grey Cup in my final year was huge, as it was the first championship I had won since I was six years old. Had my career ended with my concussion and no ring, I may think back on football in a dimmer light and feel that it delayed my future career even more. Athletes who retired after succeeding in their sporting goals have been shown to have more stable levels of self-identity, self-esteem and global self-concept, and few occupational difficulties (Park et al., 2013). I talk with other former professional athletes, and the same theme came up, what do I do with all this knowledge of my sport? I feel the need to start creating another database of knowledge for myself, and to create a new identity, which I feel I am partly doing with my education. Being an expert in one area, means I should be able to be an expert in another area. At least that's what I keep telling myself.

After football I wanted a job that made me feel like I was using part of a different identity, for example as an academic rather than an athlete, and so I pursued a job as a

kinesiologist in a physiotherapy clinic. This aligns with coping strategies used by retired athletes, who search for new careers or interests (Park et al., 2013). I enjoyed the work because I had discovered different skills that I never realized I had, including “soft skills” like interpersonal communication. Hearing from my boss and coworkers that I had these skills gave me a lot of confidence. I think that others see me as full of confidence, having accomplished what I did. Other former players agree with my perspective, saying that they have found something they like and that they are good at, and it makes them feel as though they have value again. Coming from the culture of football makes you feel very important, like you have some skill that others do not, that separates you and gives you a specific identity. You are reminded constantly by coaches, fans, former players, that you're lucky to be there. Like standing at the top of a game of king of the hill, you feel like there are people waiting and plotting to take your spot.

I still receive praise for being a football player when I am with other people. Friends, family and co-workers, especially at the gym or in athletic settings, still tell my story to strangers and introduce me as a football player. This makes me feel that my athletic identity still exists but just in a different way as it is as a former player. I also feel myself wanting to do things athletically that symbolize being an elite athlete. The impulse is still there, I still desire that label. This could be a problem, as athletes with strong athletic identity and high tendency towards identity foreclosure were shown to have negative consequences to the quality of the athlete's transition (Park et al., 2013).

Smith and Sparkes (2008) note that an individual's identity and self is a negotiated endeavor, shaped by past experiences, embedded within existing personal and cultural histories, and maintained through narrative means. As I weave the narratives to create and explore my

identity, I learn more about the many identities that I believe to exist (professional athlete, tough player, injury prone player, student, family member, teammate, concussion prone athlete, friend, concussion advocate, former athlete). Sparkes (1997) suggested that, “As individuals construct past events and actions in personal narratives they engage in a dynamic process of claiming identities and constructing lives” (p. 101–102). Now I wonder, if I had focused more on these other identities, and allowed for future ones to come into stronger consideration, would I have gambled the same way for that one identity of being a professional athlete? I would say “probably,” but I will never know. Now, I also see how narrowing your vision so hard on one aspect of your life can be a problem. This aligns with current research by Koonce (2013), who used grounded theory to interview NFL athletes in transition, and stated that:

those athletes who lived only for football ended up suspending or rejecting common sense ideas about saving money, getting an education, having a meaningful relationship with anyone or anything other than football, or partaking in social and life skill development programs that would have allowed them to connect with community leaders and potential future employers. (pg. 4)

When I disclose that I had previous concussions during football, whether it is in class, or within papers, or in discussions with professors and colleagues, I worry about what people are thinking about my intelligence. As an athlete, I became accustomed to my job security being based on coach’s perceptions of my current abilities, much as how I see that with professors in school. I already do not feel like I am a student first, being praised most often for athletics my whole life. I do not feel like I deserve to be in the academic world as much as others do, aligning closely with impostor syndrome. Now, I have this added mystery of knowing my brain could be a ticking time bomb, or just slower in general. What would this mean for me on this, the biggest

academic stage I have ever been on? On the one hand, I no longer have to dodge human car crashes every week, and the threat of a career-ending or life-altering football collision is gone. On the other hand, if I do get a concussion in another way, will it be twice as bad, given the ones that I have had before? I have not played any contact sports since playing in my last football game, and I think that last thought has a lot to do with it.

When I think about my own end of life, I like to picture getting old and dying slowly. The same way I pictured my football career ending. Life can be over in an instant, without warning, but the risk for a football career to be over in an instant without warning, is much greater. The way your career ends and what you do after is something that you have to live with for the rest of your life. As a player, I just did not want to think about the end, as there were just too many bad endings to consider. But this is the most important thing to consider as a player: at the end of the CFL it is almost as though you are reborn into a new role in life. Planning hard for this moment would lead to a smoother transition. A very intelligent coach I knew, once told me that the smartest guys in this league use the CFL to launch them into their careers after football and to “use football don’t let it use you”. We are reminded of the end, every time a player gets hurt, or sidelined, or released. You put yourself in that player’s shoes, and you’re reminded that that could have been you. And you need to be ready for it.

2.9 References

- Adams, T. E., Ellis, C., & Jones, S. H. (2017). Autoethnography. *The International Encyclopedia of Communication Research Methods*. <https://doi.org/10.1002/9781118901731.iecrm0011>
- Black, M. (2011). Players rely on education, experience after CFL career. Retrieved December 18, 2018, from <https://thethunderbird.ca/2011/03/31/players-bet-on-education-after-cfl-career/>

- Delaney, J. S., Lacroix, V. J., Leclerc, S., & Johnston, K. M. (2000). Concussions During the 1997 Canadian Football League Season. *Clinical Journal of Sport Medicine, 10*, 9–14.
- Ellis, C., Adams, T. E., & Bochner, A. P. (2011). Autoethnography: an overview. *Historical Social Research, 36*(4), 273–290. <https://doi.org/10.12759/hsr.36.2011.4.273-290>
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (1st ed., pp. 105–117). Thousand Oaks, CA: Sage.
- Hanson, T. (2011). CFL to promote concussion awareness - Sportsnet.ca. Retrieved December 18, 2018, from <https://www.sportsnet.ca/football/cfl/concussion-blitz/>
- Koonce, G. (2013). Role transition of National Football League retired athletes: A grounded theory approach. *Marquette Sports Law Review, 23*(2), 249–338.
- Lally, P. (2007). Identity and athletic retirement: A prospective study. *Psychology of Sport and Exercise, 8*(1), 85–99. <https://doi.org/10.1016/J.PSYCHSPORT.2006.03.003>
- Marechal, G. (2010). Autoethnography. In A. J. Mills, G. Durepos & E. Wiebe (Eds.), *Encyclopedia of case study research. Thousand Oaks, CA: Sage Publications., 2*, 43–45.
- Park, S., Lavalley, D., & Tod, D. (2013). International Review of Sport and Exercise Psychology Athletes' career transition out of sport: a systematic review. *International Review of Sport and Exercise Psychology, 6*. <https://doi.org/10.1080/1750984X.2012.687053>
- Petraglia, A. L., Winkler, E. A., & Bailes, J. E. (2011). Stuck at the bench: Potential natural neuroprotective compounds for concussion. *Surgical Neurology International, 2*, 146. <https://doi.org/10.4103/2152-7806.85987>
- Ponterotto, J. G. (2005). Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *Journal of Counseling Psychology, 52*(2), 126–136.

<https://doi.org/10.1037/0022-0167.52.2.126>

Smith, B., & Sparkes, A. C. (2008). Contrasting perspectives on narrating selves and identities:

An invitation to dialogue. *Qualitative Research*, 8(1), 5–35.

<https://doi.org/10.1177/1468794107085221>

Sparkes, A. C. (1997). *The physical self: From motivation to well-being*. (K. R. Fox, Ed.), *The physical self: From motivation to well-being*. Champaign, IL, US: Human Kinetics.

Spry, T. (1999). *Performing Autoethnography: An Embodied Methodological Praxis* (Vol. 7).

Retrieved from <http://www.nyu.edu/pages/classes/bkg/methods/spry.pdf>

Torre, P. (2009). How (and Why) Athletes Go Broke | Vault. Retrieved December 18, 2018,

from <https://www.si.com/vault/2009/03/23/105789480/how-and-why-athletes-go-broke>

Chapter 3¹

Qualitative Research and Sport-Related Concussions: A Scoping Review

3.1 Introduction

A concussion is the result of physical trauma to the brain, causing altered cognitive function (T. Anderson, Heitger, & Macleod, 2006). This trauma leads to a complex pathophysiological process that can result in a variety of symptoms that may vary substantially in severity across individuals. The Berlin concussion consensus statement describes a sport related concussion (SRC) as “a traumatic brain injury induced by biomechanical forces” (McCrory et al., 2017). McCrory et al. (2017, p. 839) also lists several common features that help clinically define the nature of concussions:

- *SRC may be caused either by a direct blow to the head, face, neck or elsewhere on the body with an impulsive force transmitted to the head.*
- *SRC typically results in the rapid onset of short-lived impairment of neurological function that resolves spontaneously. However, in some cases, signs and symptoms evolve over a number of minutes to hours.*
- *SRC may result in neuropathological changes, but the acute clinical signs and symptoms reflect a functional disturbance rather than a structural injury and, as such, no abnormality is seen on standard structural neuroimaging studies.*
- *SRC results in a range of clinical signs and symptoms that may or may not involve loss of consciousness. Resolution of the clinical and cognitive features typically follows a sequential course. However, in some cases symptoms may be prolonged.*

There exists an ambiguity within the definition of concussion and post-concussion symptoms that clinicians, athletes, coaches, parents and trainers use, and slang expressions are frequently used within lay literature. Depending on the population, the most likely events to cause a concussion are vehicle accidents, falls, sports and recreational activities, and assaults (T. Anderson et al., 2006). Sports-related concussions account for more than 85% of concussions in

¹ This paper will be submitted for publication to the Journal of Sport and Exercise Psychology as follows: Stephenson, D.W.H., Kinsella, E.A., Holmes, J.D., & Johnson, A.M. Qualitative Research and Sport-Related Concussions: A Scoping Review.

individuals between the ages 16-34 (Gordon, Dooley, & Wood, 2006). Across all sports in young athletes, the overall risk of concussion was .23 per 1000 athlete exposures (where exposure is defined as participating in a game or practice) with rugby, hockey and football demonstrating the largest prevalence's, at 4.18, 1.2, and .53, respectively (Pfister, Pfister, Hagel, Ghali, & Ronksley, 2016).

Head impacts are quite commonplace in sports like boxing and football, and generally don't result in a concussion. However, there is evidence that these impacts may accumulate over careers, potentially resulting in chronic traumatic encephalopathy (CTE), a neurodegenerative condition that ultimately results in the death of nerve cells in the brain (Hazrati et al., 2013; Omalu, Hamilton, Kamboh, DeKosky, & Bailes, 2010). Alarmingly, a recent study found that 87 of 91 deceased NFL players were recently found to have CTE (Breslow, 2014). Potentially more problematic, however, is the effect of a second concussion that is sustained before the brain has recovered from the first (Snedden, 2013). These second impacts may be difficult to prevent, as a player could receive an impact early in a game and not show many signs or symptoms of a concussion, and then sustain a second impact later in that same game. Second impact syndrome can occur between (not just within) games. This underscores the importance of player education, both with regards to identification of symptoms, and the importance of reporting even less severe concussion symptoms.

Interestingly, there is increasing evidence to suggest that conservative diagnostic practices may also lead to negative outcomes. Concannon, Kaufman, and Herring (2014) suggest that there can be future consequences for an athlete who retires earlier than planned, due to a concussion. With regards to making retirement decisions (i.e., a determination that an athlete will not return to a sport at all), there are important considerations that must be taken

into account. Given that participation in sport and physical activity has repeatedly been shown to be beneficial for long-term health (Elward & Larson, 1992), as well as for character development and social bonds (Artinger et al., 2006), retirement from sport may have significant physical and psychosocial impacts. Psychosocial sequelae such as a loss of identity, and reduced peer group interactions, may be manifested by the athlete – and for some athletes early retirement can be highly disruptive to their support network (Concannon et al., 2014). There are also financial consequences to retirement – not only for the professional athlete, but also for the college or high school athlete training for an athletic scholarship (Concannon et al., 2014).

While sport-related concussion and traumatic brain injury have been studied extensively from a quantitative perspective, there is still a limited amount of qualitative research that has been conducted within the area. This is unfortunate, as qualitative research employs methodologies and methods that gather rich sources of data to investigate the views of the athletes with concussion, and the supporting persons around them. Given the wide range of investigations that have been undertaken within the concussion literature, it may be important to summarize these qualitative efforts in a scoping review.

For example, Meier et al. (2015) found that athletes self-reported significantly fewer symptoms to team athletic trainers using an ImPACT test, as compared to self-reported symptoms collected confidentially. Many of these “cleared” athletes still had symptoms one week post-concussion. This suggests that there may be limitations associated with the use of “objective measurements” within quantitative studies. The application of qualitative methods may result in the generation of research findings that reveal *more* information and insight into the *processes* each individual *chooses* during their recovery. The strength of qualitative

research is particularly evident in this context, as athletes may discuss and understand injury in subculture-specific ways because of the networks of relationships that characterize the sport context. Only through a careful consideration of individual and group contexts can this information be interpreted in a meaningful way. To this end, Kroshus et al. (2014) commented:

Determining what the biggest concerns are about reporting a concussion for a given population of athletes and then developing interventions to address these specific concerns may be an effective way to change reporting intention and behavior (p.273)

This attention to specific characteristics of populations (and even individuals) underscores a key strength of qualitative research – namely attention to the context for individuals, in shaping responses to questions. Qualitative research methods may, therefore, be of particular importance within the study of concussion, as they offer a method that can highlight each individual, and leverage his or her unique viewpoints regarding how they have come to perceive the reality about their concussion, as well as the possible consequences that may arise from that injury (Kinsella, 2006).

Accordingly, the purpose of this paper is to summarize the qualitative research that has been undertaken within the sport-related concussion literature. Note that it is important to look at “sport-related” concussions, and not just concussions or mTBI, because the frequency of repetitive head trauma in a sport such as boxing or football is thought to pose a unique mechanism of injury, and collisions in sports involve much lower acceleration-deceleration forces than do motor vehicle accidents (Malcolm, 2009). Thus, the present research attempted to address the following question within a scoping review framework: What is the current state

of the peer-reviewed qualitative literature on sport-related concussions, and how can this information be used for implications for practice, policy, and research?

3.2 Method

We followed the guidelines for scoping reviews that were established by Arksey and O'Malley (2005), incorporating suggestions by Levac, Colquhoun, and O'Brien (2010). A scoping study is designed to cover a wide breadth of information on a broad topic, and encompasses a plethora of literature sources with the intention of mapping out current relevant knowledge of the topic under study (Arksey & O'Malley, 2005).

Arksey and O'Malley (2005) identified 5 primary stages within the conduct of a scoping review: (1) identifying the research question; (2) identifying relevant studies; (3) selecting studies; (4) charting the data; and (5) collating, summarizing and reporting the results. Levac et al. (2010) suggested a sixth stage, "seeking consultation" to be a valuable (albeit optional) final step. We did not, however, complete this sixth stage in the present study, as the purpose of this study was to evaluate the different types of qualitative research that are extant within the concussion literature, and that purpose would not necessarily benefit from the triangulation of the findings by expert review.

3.2.1 Research Question for Scoping Review

1. What is the extent, range, and nature of the peer reviewed qualitative research literature on concussions in sport?
2. What are the major thematic content areas depicted in the peer-reviewed qualitative research literature on concussions in sport?
3. What gaps are identified within the concussion research that has been undertaken using qualitative research methods?

3.2.2 Identifying Relevant Studies

| | |
|---------------------|---|
| Data Sources | <i>Pubmed, Google Scholar, Scopus, PsycINFO and SPORTDiscus</i> |
|---------------------|---|

An iterative approach was used within the literature search, while engaging with the retrieved literature in a reflexive way to ensure a comprehensive coverage of the literature (Arksey & O'Malley, 2005). Due to these recommendations, articles were added continuously throughout the research period when discovered. During this stage, databases were searched using a search string, followed by several combinations of relevant search terms to uncover as many studies as possible. Titles and abstracts were read for relevance, and full text was read to further investigate possible inclusions. References of selected articles were also searched for further relevant articles to include.

| | |
|----------------------|--|
| Search string | (concuss* OR mTBI OR TBI OR ABI OR “brain injur*” OR “head injur*” OR “post concussion syndrome” OR PCS) AND (qualitative OR “qualitative research” OR phenomenology OR narrative OR “grounded theory” OR ethnography OR “case study” OR “content analysis” OR "discourse analysis") |
| Search terms | Combinations of (concuss*, mTBI, TBI, head injur*, brain Injur*, qualitative, “qualitative research”, phenomenology, narrative, “grounded theory”, “case study”, “content analysis”, discourse analysis”) |

3.2.3 Study Selection

The primary investigator selected all studies relevant to the topic by examining articles from the data bases and comparing them to the inclusion and exclusion criteria (see Table 3.1

for the inclusion and exclusion criteria used in this study). The data extractor was not blinded to citations. Typical of scoping reviews, the inclusion criteria were based on the relevance of the studies rather than on the quality. Mixed method data was not included, this was chosen so that the total number of articles were manageable, and to represent strictly qualitatively based studies. A series of search terms were used to cover the wide use of terms used for concussion in the literature. In this scoping review, only qualitative research on sport-related concussions was reviewed, with an aim to assess the extent, range, gaps, and nature of research activity on the topic “qualitative research and sport-related concussions”. The selection of studies was based on relevance to the topic. For this review, participants in the studies were limited to individuals with sport-related concussions, or individuals in the supporting role of the athlete with a concussion (e.g., parents, coaches, and medical personnel). Articles were searched with a date range of 2001-2016, to capture the first 15 years of sports-related concussion research following the first International Symposium on Concussion in Sport (Aubry et al., 2002) .

Only studies in English were reviewed, as that is the language of the primary investigator. A PRISMA flow diagram for the study retrieval is presented as Figure 3.1.

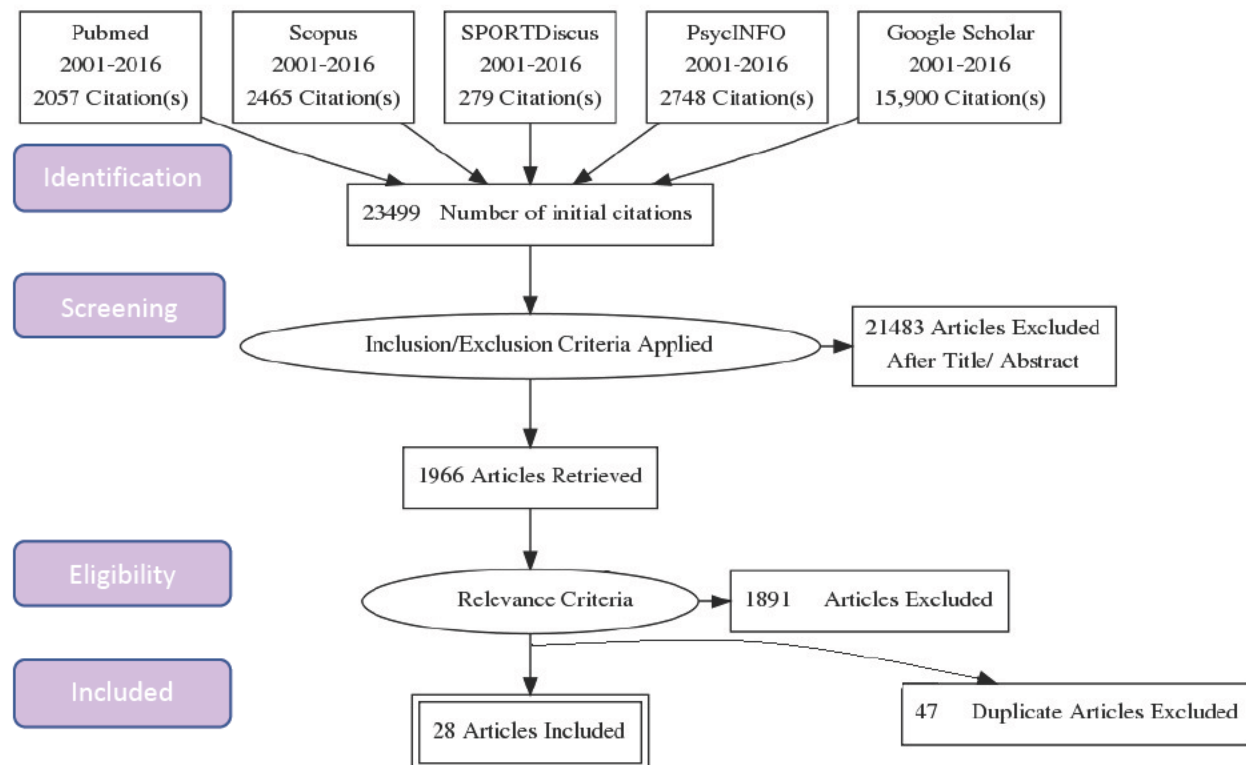
3.2.4 Charting the Data

Data was extracted from the studies according to the following categories, and a descriptive analysis as well as a qualitative thematic analysis were undertaken: (1) citation of study; (2) database indexing study; (3) year of study; (4) journal study was published in; (5) country (location) of study; (6) participant information; (7) aims of the study; (8) methodology used; (9) research methods used; (10) important results and conclusions; (11) suggested future research directions; (12) limitations of the study; (13) themes identified (categorized).

Table 3.1. Inclusion and Exclusion Criteria

| | |
|--|---|
| <p><u>Inclusion Criteria</u></p> <ul style="list-style-type: none"> • addresses concussions / mTBI / TBI / ABI / PCS / Head injury / Brain injury using qualitative methodologies • uses the terms “concussion, concussions, mTBI, TBI, ABI, brain injury, PCS, post-concussion syndrome” or describes a brain injury. • published between 2001-2016 • published in English • peer-reviewed and published in a peer reviewed journal | <p><u>Exclusion criteria</u></p> <ul style="list-style-type: none"> • quantitative or mixed methods studies • not available in English • published within the grey literature |
| <p><u>Relevance Criteria</u></p> <ul style="list-style-type: none"> • must be sport-related concussion research | |

Figure 3.1. PRISMA Flow Diagram for the Scoping Review Process



3.2.5 Collating, Summarizing and Reporting the Results

In reporting the results, we tabulated publication statistics, as a descriptive numerical summary. We then conducted a thematic analysis, aggregating across articles, looking for breadth and commonalities within major themes or categories. Finally, we used this information to generate recommendations for practice, policy and future research.

3.3 Results

3.3.1 Descriptive Numerical Summary

Using a comprehensive search of electronic databases, we identified a total of 28 qualitative studies that met all of the relevant inclusion criteria.

The publication year of the included articles ranged from 2003-2016, with the majority (22) being in the last 5 years (2012-2016). The articles were published in a wide range of

journals, with 3 being the most from any single source. The majority (21) of the articles were completed in North America (USA 12, Canada 9). The majority (24) of articles used the term “concussion”. There was a range of methodologies used, with case study being the most frequent. Some studies used more than one method, but semi-structured interviews were by far the most employed method. Participants studied were, for the most part, athletes (24) of various ages and levels of play, while other support persons such as coaches, clinicians, parents, trainers, equipment personnel, managers, and physiotherapists were all represented in the data. Additional detailed descriptive numerical data is presented in Appendix A.

3.3.2 Categories and Related Themes

Five major themes were identified, including: a) media and social portrayal of concussions, b) barriers to concussion disclosure, c) coping strategies and unique experiences, d) parents and care givers e) coaches, sport clinicians and equipment personnel

3.3.2.1 Media and Social Portrayal of Concussions

One dimension that was frequently identified was how important it is to examine how concussions are being portrayed or represented in the media or social media. Considering the literature findings within “a culture of risk” speaks to how the culture of a sport such as hockey can create an even further risk for concussion for the players, as it can encourage playing through pain and injury (Caron, Bloom, Johnston, & Sabiston, 2013). How the media portrays concussion and concussion knowledge was recognized as playing a large part in how the general public comes to understand these issues. For instance, how news reporting of concussions can affect public discourse and the shaping of programs and policies that have positive or negative effects on public health was a topic raised (Cusimano, Sharma, Lawrence, Ilie, & Silverberg, 2013).

A study by Anderson and Kian (2012), showed how National Football League (NFL) players were beginning to question the narrative of sporting masculinity that requires self sacrifice at any cost, and how the media is also beginning to present stories that support health over a previously dominant masculine warrior narrative. They also illustrated the power of narrative to shape perceptions, quoting Tim Keown of ESPN Internet:

With one act of humanity and one public display of perspective, Packers receiver Donald Driver did more than a thousand studies or a million speeches. He accomplished what no one had yet managed to do in this era of heightened awareness of head injuries in the NFL: He made it OK for a teammate to leave the game because of a concussion (p. 161)

McGannon, Cunningham, and Schinke (2013) describe a 2011 concussion media analysis of Sidney Crosby. Multiple meanings of concussion within the risk narrative emerged, particularly with regard to the physical risks, physiological effects, and political risks related to concussion, but failed to address the potential psychological consequences of concussions. Given that young athletes are likely to gather much of their concussion knowledge from media portrayals (and analysis) of the injuries sustained by prominent athletes, the significance of such narratives is clear.

Hull and Schmittl (2015) suggested that during the 2013 Super Bowl, concussion advocates did not send many messages promoting their cause, and suggested this is a critical time for these advocates to spread their messages. They suggest that advocates should be consistent with their message and take advantage of this big events. Wendt and Miller (2015) point out that concussions can occur in the heat of the moment on some of the biggest stages in the world, as they discuss how concussion cases during the FIFA 2014 championship were

done incorrectly and even led to a debate over rule changes in the sport. This case study revealed how players react to potentially incurring a concussion as well as highlighting what international organizations are doing to combat this issue.

Sullivan et al. (2012) analyzed concussion-related tweets on Twitter, to provide a snapshot of how Twitter users are reflecting on concussion in their everyday lives - something that is possible, due to the fact that Twitter has an active traffic of concussion-related tweets. The authors note that the growing popularity of social networking sites like Twitter offer potential mediums for the dissemination of concussion related information to the general public and health professionals. They also suggest that Twitter allows researchers and health professionals to connect with the busy 'now' generation and is a valuable tool for enhancing knowledge translation with this population.

Cusimano et al. (2013) studied newspaper reports about sport related TBI in four major North American newspapers over the last quarter-century. The major themes they found were: perceptions of brain injury, aggression, equipment, rules and regulations, and youth hockey. They found that newspapers across North America commonly presented the viewpoint that there is an unavoidable risk to concussions while playing hockey, due to the violence and aggression necessary within the sport. Newspapers also condemned violence in ice hockey, criticized the administrative response to concussion, recognized the significance of concussion, and showed interest in change the rules to youth hockey to protect against concussions.

Blake, Rock, and Emery (2014) concluded that Canadian English newspapers accurately portray evidence-based messaging for youth hockey players regarding body-checking and concussions, and suggest that it is likely that concussion messaging is being relayed to the public. They suggest that news outlets, blogs, social media, and television programming that

spread concussion awareness have shown some evidence that correct concussion messaging is being promoted. Hull and Schmittl (2015) indicate that future attempts at raising awareness online should be accompanied by a hashtag that all advocates can use when sending a tweet.

3.3.2.2 Barriers to Concussion Disclosure

One frequently-identified dimension was that there are several barriers to concussive symptom reporting among athletes. A number of studies suggested that athletes at various levels of play may have barriers to concussion reporting and may have motivations to play through concussion symptoms that can be similar to others, or not at all.

Chrisman, Quitiquit, and Rivara (2013) found that athletes had knowledge about the signs, symptoms, and dangers of concussions, but would still play due to several barriers, such as wanting to keep playing and fear of being removed from the game. Athletes had trouble confusing the concussion symptom with another etiology and would only come out if there was significant pain or disability. Coach approachability was shown to be a possible issue.

Exploring athlete willingness to engage and play through injury was studied by Madrigal, Robbins, Gill, and Wurst (2015). Two major themes emerged: “passion for sport” and “sport ethic.” Passion for sport was comprised of “(a) love of the sport, (b) meaning of the sport, and (c) desire to be on the field. Sport ethic included: (a) helping the team, (b) game time sacrifice, (c) personality, (d) minimize [downplaying injury severity] and (e) accepted behavior.” (p. 313) Discovered barriers included having an emphasis on toughness and playing through as a sport norm, avoiding letting their teammates down, and putting the team success ahead of their personal health.

Another potentially fruitful line of inquiry from this information is the possible link between mental toughness and one's likelihood of getting injured and or playing injured (Madrigal et al., 2015).

Madrigal et al. (2015) present a comment made by one player that highlights a potentially important dimension in concussion symptom reporting: "most of my concussions are at the end of the season, so I've been pretty lucky in that sense" (p.314). The author points out that concussions are being normalized within sport – so much so that athletes feel they are "lucky" to not have a concussion or "lucky" to get it at less inopportune times.

Strand (2013) conducted a case study illustrated the extent to which an athlete knew the risks of playing while symptomatic, and yet played the remainder of the season anyways. This study also showed that symptoms returned when returning to play even after the concussion guidelines were followed. Moreau, Langdon, and Buckley (2014), interviewed 4 NCAA division I student-athletes' lived experiences of in-season concussion. The results showed that student athletes did not always report concussion symptoms, sometimes for fear of failing to meet teammate expectations, and had dishonesty when reporting ongoing symptoms.

Barriers can be influenced by the culture of the sport. The narratives of the lives and careers of these athletes provide insight into the many personal risks and implications athletes in highly masculine sporting environments face. Tjønndal (2016), looked at the masculine narratives of violence in two NHL hockey players, showing there was a general acceptance (and sometimes encouragement) of player violence and 'violence against the self' in ice hockey that can lead to detrimental health effects.

Mental health issues (such as depression and post-traumatic stress) have been reported as a consequence of all levels of traumatic brain injury including sports-related concussion

(Patricios et al., 2018). Barriers to young athletes (ages 16-23) reporting these mental health disorders were investigated, in the study by Gulliver, Griffiths, and Christensen (2010). They found “stigma was the most important perceived barrier to seeking help, [followed by] a lack of mental health literacy, and negative past experiences of help-seeking. [Help-seeking] facilitators were encouragement from others, having an established relationship with a provider, pleasant previous interactions with providers, the positive attitudes of others, especially their coach, and access to the internet.” (p. 7)

Another unique dimension of these barriers that was studied was in relation to symptoms being masked, or challenges of differentiating concussion symptoms from other illnesses. One case study presented information about an athlete who had hypopituitarism that was masked by trauma and post-concussion symptoms. This led to a situation in which symptoms were not appearing until months or years after the trauma incident, which significantly delayed proper diagnosis and treatment (Ives, Alderman, & Stred, 2007). They recommended the training of sports medicine clinicians, with the goal of recognizing the possibility of pituitary disorders after sports concussion. Chrisman et al. (2013) presented similar findings, noting that it can be difficult to differentiate between concussion symptoms and dehydration or viral illness symptoms in athletes.

3.3.2.3 Coping Strategies and Unique Experiences

A third major theme was related to the journey of living with concussion both in terms of the experience itself, the recovery process, and challenges interpreting symptoms. Concussions were shown to disrupt or alter several different aspects of the lives of athletes of all ages and levels of play.

Isaac et al. (2014) presented a phenomenological study in which they found that after their concussion during the return-to-play period participants felt emotional distress from being removed from all aspects of their life: academics, sport and social. Athletes suggested having a strong social support system and being honest about your concussion symptoms to fellow varsity athletes.

One dimension that was frequently studied was the lived experience of individuals recovering from a concussion, as this is a strength for qualitative methodologies. Given the functional uniqueness of each individual with a concussion, much can be learned by exploring the lived experiences and perceptions of people with concussions. Caron et al. (2013) studied the lived experiences of concussions with five professional hockey players who had retired from the NHL. Concussions affected and sometimes complicated their professional careers, personal relationships, and quality of life – even in their retirement years, with complications such as anxiety, isolation and depression.

Moreau et al. (2014) illustrated the challenges associated with concussion assessment during the season, as well as the impact that concussions can have within the classroom for student-athletes by interviewing athletes who were currently undergoing recovery from concussion. They concluded that negative effects on academic performance were a potential side effect of concussions. The authors suggested to monitor student-athlete activity levels outside athletics, as one athlete discussed frequently exercising on her own accord outside of the sport and experienced concussion symptoms following the exercises, all the while not reporting the symptoms to the trainer. Research by Iadevaia, Roiger, and Zwart (2015) also showed concussions having an effect on school attendance, as well as school activities and interpersonal interactions. Feelings of frustration were common within this study – and this

frustration was shown to lead to varying degrees of post-concussion emotional upheaval. Concussions can take athletes out of their daily routines, which may produce feelings of isolation. This may lead athletes to minimize and mask their symptoms, in an attempt to limit further isolation (Parsons & McLeod, 2012).

Provvidenza, Keightley, Reed, and Green (2013) explored the perceived impact of sports-related concussion by youth and their parents in the context of home, school and sport functioning. The theme “a journey of recovery from concussion across time” was created to illuminate the journey the child athletes went through. The children showed higher levels of anger and frustration and feared getting hit while symptomatic, but the concussions did not have a long-term impact on hockey or school performance.

3.3.2.4 Parents and Care Takers

The significance of relationships and supportive roles of many people in the recovery process was a topic that arose within the research. With sports concussions, there are often many people involved in the recovery process, including (but not limited to) athletes, peers, coaches, parents, trainers, therapists, and physicians. It is important to know the role carried out by each person if we want to properly address concussions from every angle.

Iadevaia et al. (2015) examined the perceptions that adolescents and their parents have about their concussion, one-year post-injury. Multiple quality-of-life domains were affected after the sport-related concussion and the participants provided displayed the differential nature of interpersonal relationships during recovery. The influence of the concussion on social interactions seemed to depend on the nature of interpersonal relationships, as they discussed feelings of being left out although teammates were supportive. Participants described the “substantial effects of physical symptoms, [reporting] a satisfactory level of academic

accommodation but substantial difficulties in trying to maintain a normal academic schedule.” (p. 1188). Often parents and adolescents reported the same symptoms in the concussed adolescents, showing that concussions and the ensuing symptoms are noticeable and can affect the supporting cast of the injured athlete (Iadevaia et al., 2015)

Wongvatunyu and Porter (2005) described the experience of mothers helping young adults with TBI from various accidents including sports related injuries. These phenomena included: “reconnecting my child's brain; considering my child's safety; making our lives as normal as possible; dealing with our biggest problem; and advocating for my child.” (p. 48). The study highlighted the minimal services that were available for the mothers who needed it.

Parsons and McLeod (2012), found that familial tension can be caused when parents and concussed adolescents prioritize the effects of concussion differently. Tension resolved when both parties acknowledged the seriousness of the concussion symptoms, and as the symptoms themselves diminished. Athletes were shown to try and mask and minimize their symptoms but has noticeable personality changes. Parents were shown to be sensitive to these changes, as well as negative changes in their school and physical performance.

3.3.2.5 Coaches, Sport Clinicians and Equipment Personnel

Coaches, sport clinicians and equipment personnel support athletes with concussions, and a number of studies investigated this dimension. Caron, Bloom, and Bennie (2015) presented information concerning the role coaches perceived themselves to have with concussions, as well as the sources of information that coaches use to inform their concussion decision-making. They suggested that coaches generally get their concussion knowledge and information from their own experiences, parents (of players), and reports in the media. They were primarily concerned with teaching safety techniques, discussing the importance of

reporting, adhering to the athletic trainer's suggestions and prioritizing the athlete's health over winning. This study provided recommendations to improve the dissemination of concussion information to coaches.

Gauvin-Lepage and Lefebvre (2010) looked at the perceptions adolescences and their involved professionals had of their lives with mTBI, such as the adolescent's personal experiences, the family, friends, the environment and school. Repercussions that facilitate and limit adolescent's social inclusion were found, along with insight on coping through the concussion experience as a family. The addition of the professionals added more ideas that did not come up in interviews with the adolescents and their parents.

Examining how networks of relations influence the construction of sport clinicians' knowledge, it was found that uncertainty permeates the medical understanding, clinical treatment, and patient experience of concussion (Malcolm, 2009). Clinicians interviewed within this study noted that dealing with athlete concussions were one of the most problematic aspects of their job, even more than prescribing and administering painkilling injections, or maintaining confidentiality. The tension between clinicians, players, and coaches was reported to be constant. One physician noted that concussions were "one of the things that I absolutely hate about the medical side of rugby at the moment" (Malcolm, 2009, p. 19). This research connects the existential uncertainty of concussions with rationalization and normalization of pain and injury. Not only do athletes tolerate injuries in order to maintain their athletic self, but clinicians tolerate compromised diagnoses to maintain their medical self (Pike & Maguire, 2003, as cited in Malcolm, 2009). There is pressure, uncertainty and compromise shaping the people involved in the athlete's recovery. This is highlighted by one clinician quote:

“I told the coach that he had to come off and he initially said, ‘I’ll make that decision.’” (Sports Clinician ~ Malcolm, 2009 p.19)

On this issue, Chrisman (2013) suggests that benefits can come from improving communication between coaches and athletes regarding concussion management.

A few studies also investigated the culture of concussion intervention. Safai (2003) examined the relationship between the "culture of risk" and the negotiation of treatment between university sport medicine clinicians and student-athletes. Most patient-to-athlete interactions operated within this culture of risk described by the author and resulted in an exchange of information based on weighing of perceived risks vs perceived benefits. Some athletes respected the information on concussions, others choose to ignore the risks and attempted to negotiate with clinicians. One clinician thought that often athletes do not understand or interpret their concussion as significant, possibly due to the variance in intensities of the concussions. This highlights the need for strong policy within organizational concussion guidelines, to reduce the amount of possible negotiation by the player, and to increase awareness of the concussion issue among the athletes.

McManus (2006) assessed the current understanding of brain injury in sport, to identify existing management and return to play guidelines associated with mTBI in non-elite field hockey and Australian rules football. None of the 20 clubs followed a standardized procedure or had evidence-based guidelines available, leading to management of head and brain injuries that were variable between clubs. Furthermore, only 11/20 respondents used a set procedure and varied between sport and among clubs within the same sport.

Oja and Bass (2016) studied perceptions of equipment personnel on a variety of topics related to organizational power and concussions. Equipment personnel were shown to have

little overall professional power, while coaches had varying levels of influence. Equipment personnel generally believed they retained the power to choose protective equipment for student-athletes, however autonomy inconsistent. Some coaches were even thought to have more power than their formal supervisors.

3.4 Discussion

This review contributes to understanding by illuminating four major themes: a) media and social portrayal of concussions, b) barriers to concussion disclosure, c) coping strategies and unique experiences, d) parents and caregivers, e) coaches, sport clinicians and equipment personnel. “A culture of risk” was a prevalent theme within the first theme (media and social portrayal), and this highlights the importance of cultural discourses for shaping our understandings of sport concussions. Recognizing a culture of risk in sports-related concussion illuminates how the stigma surrounding concussions can be culturally influenced by media portrayals. Understanding the narratives of how the people in the spotlight are discussing concussions can be a factor for shaping concussion awareness in positive or negative directions. Studies of team, league, and sport culture may lead to strategies for improving coach approachability on concussion reporting strategies, as well as on the topic of developing more sophisticated treatment and return to play strategies (Chrisman et al., 2013). Studying teammate knowledge within a sports culture may contribute to our understanding of how that culture impacts the athletes tendencies to play injured or to comply with treatment protocols (Caron et al., 2013).

Many of the studies pointed to how athletes often choose their sport over their health. Athletes at various levels of play may have barriers to concussion reporting and may have motivations to play through concussion symptoms. This review uncovered many qualitative

dimensions surrounding barriers to reporting concussion symptoms, and points to potential areas for future research, such as studying how mental toughness can influence concussion symptom reporting.

The review points to unique journeys of recovery in sports related concussion, with different qualitative experiences and coping strategies highlighted. The studies portrayed athletes as struggling with concussions and the symptoms, as well as with the recovery process. A range of factors were discussed that have the potential to impact the recovery process; awareness of these may be practically useful for others in the recovery process or facilitating the recovery process, or informing the direction of future researcher. Identifying symptoms that could potentially mask or mimic a concussion, is an area in need of future research.

Within the categories “Parents and Caretakers” and “Coaches, Sport Clinicians and Equipment Personnel” it was shown how complex and dynamic a concussion experience can be, and how it can have a ripple effect on the people in concussed athletes’ lives. Multiple perspectives on the concussion journey, as well as potential tensions when these perspectives collide were revealed in the review. Findings of this review may provide professionals with practical insights on how to better support the social inclusion of individuals living with concussion, the tensions that may arise, and the importance of families and a supportive team in supporting the recovery process.

This review also has implications for concussion policy. Attention to various discourses that operate, the pressures that athletes experience to return to play, the unique concussion journeys of individuals, and the tensions between stakeholders involved in the concussion recovery could help inform proactive policies and dialogue concerning the lived experience of sport-related concussion. More information can be gathered using systematic comparative

research on the policies in place at post-secondary institutions, as well as an analysis of the ways in which policy translates into, and informs, the day-to-day actions of institutional members (Safai, 2003). Along similar lines, a closer look is needed at how closely leagues, teams, schools and individuals follow evidence-informed concussion guidelines (McManus, 2006). For example, research is needed on how policy affects athlete negotiations over the nature and timing of their concussion recovery (Safai, 2003). Policy can also be affected by the media, and information can be gathered as to how news reporting of concussions “can affect public discourse and the shaping of programs and policies that have positive effects on public health” (Cusimano et al., 2013, p. 6).

Qualitative research can expand well into a growing social media market to investigate how people are understanding and portraying concussion knowledge, for instance by studying how the news media or twitter accounts portray concussions. The data collected in qualitative research has a unique way of showing its discoveries, with its breadth and depth of findings and quotes that the readers can relate to. Awareness of concussion risks and treatments has improved significantly over the last decade Sarmiento, Mitchko, Klein, and Wong (2010), but understanding the lived experience of concussion from the perspective of athletes and those who support them is in the early stages. Qualitative methodologies are designed to explore and construct knowledge about these concussion experiences that can provide useful information to start planning strategies to foster greater understanding of athlete’s experiences of living with, and recovering from concussion. This scoping review highlights the affordances of qualitative research as a means to uncover the subtle complexities and lived experience of concussion in sports related injury. Many methodologies and methods were used to research not only athletes’

experiences of concussion, but also media representations, dominant discourses, as well as the perspectives of parents, clinicians, coaches, teammates and equipment personnel.

3.4.1 Strengths and Limitations

The systematic nature of the scoping review and the range of the articles and databases searched adds to the credibility and strength of the study. Limitations may include missing information from mixed methods, grey literature, quantitative surveys, and all studies that were not done in English.

3.4.2 What the study has added

This study has mapped the current state of the peer-reviewed qualitative literature on sport-related concussions, and has implications for practice, policy, and research.

3.5 References

Anderson, E., & Kian, E. M. (2012). Examining Media Contestation of Masculinity and Head Trauma in the National Football League. *Men and Masculinities*, *15*(2), 152–173.

<https://doi.org/10.1177/1097184X11430127>

Anderson, T., Heitger, M., & Macleod, A. D. (2006). Concussion and mild head injury. *Practical Neurology*, *6*(6), 342–357. <https://doi.org/10.1136/jnnp.2006.106583>

Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework.

International Journal of Social Research Methodology, *8*(1), 19–32.

<https://doi.org/10.1080/1364557032000119616>

Artinger, L., Clapham, L., Hunt, C., Meigs, M., Milord, N., Sampson, B., & Forrester, S. A. (2006). *The Social Benefits of Intramural Sports*. *NASPA Journal* (Vol. 43).

Aubry, M., Cantu, R., Dvorak, J., Johnston, K., Kelly, J., Lovell, M., & McCrory, P. (2002).

Summary and agreement statement of the first International Conference on Concussion in

- Sport, Vienna 2001. *Leaders*, (1), 6–10.
- Blake, T., Rock, M., & Emery, C. (2014). Prioritizing Concussion Prevention in Youth Ice Hockey: an Assessment of English-Language Canadian Newspapers As a Vehicle for Evidence-Based Knowledge Translation. *British Journal of Sports Medicine*, *48*(7), 570. <https://doi.org/10.1136/bjsports-2014-093494.28>
- Breslow, J. (2014). 76 of 79 Deceased NFL Players Found to Have Brain Disease | League of Denial: The NFL's Concussion Crisis | FRONTLINE | PBS | Official Site. Retrieved December 18, 2018, from <https://www.pbs.org/wgbh/frontline/article/new-87-deceased-nfl-players-test-positive-for-brain-disease/>
- Caron, J. G., Bloom, G. A., & Bennie, A. (2015). Canadian High School Coaches' Experiences, Insights, and Perceived Roles With Sport-Related Concussions. *International Sport Coaching Journal*, *2*, 285–297. <https://doi.org/10.1123/iscj.2015-0022>
- 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 & Exercise Psychology*, *35*, 168–179.
- Chrisman, S. P., Quitiquit, C., & Rivara, F. P. (2013). Qualitative Study of Barriers to Concussive Symptom Reporting in High School Athletics. *Journal of Adolescent Health*, *52*, 330–335. <https://doi.org/10.1016/j.jadohealth.2012.10.271>
- Concannon, L. G., Kaufman, M. S., & Herring, S. A. (2014). Counseling Athletes on the Risk of Chronic Traumatic Encephalopathy. *Primary Care*. <https://doi.org/10.1177/1941738114530958>
- Cusimano, M. D., Sharma, B., Lawrence, D. W., Ilie, G., & Silverberg, S. (2013). Trends in North American Newspaper Reporting of Brain Injury in Ice Hockey. *PLoS ONE*, *8*(4),

61865. <https://doi.org/10.1371/journal.pone.0061865>

Elward, K., & Larson, E. B. (1992). Benefits of Exercise for Older Adults: A Review of Existing Evidence and Current Recommendations for the General Population. *Clinics in Geriatric Medicine*, 8(1), 35–50. [https://doi.org/10.1016/S0749-0690\(18\)30496-8](https://doi.org/10.1016/S0749-0690(18)30496-8)

Gauvin-Lepage, J., & Lefebvre, H. (2010). Social inclusion of persons with moderate head injuries: The points of view of adolescents with brain injuries, their parents and professionals. *Brain Injury*, 24(9), 1087–1097. <https://doi.org/10.3109/02699052.2010.494593>

Gordon, K. E., Dooley, J. M., & Wood, E. P. (2006). Descriptive epidemiology of concussion. *Pediatr Neurol*, 34, 376–378. <https://doi.org/10.1016/j.pediatrneurol.2005.09.007>

Gulliver, A., Griffiths, K. M., & Christensen, H. (2010). Perceived barriers and facilitators to mental health help-seeking in young people: a systematic review. *BMC Psychiatry*, 10(113). <https://doi.org/10.1186/1471-244X-10-113>

Hazrati, L.-N., Tartaglia, M. C., Diamandis, P., Davis, K. D., Green, R. E., Wennberg, R., ... L., E. (2013). Absence of chronic traumatic encephalopathy in retired football players with multiple concussions and neurological symptomatology. *Frontiers in Human Neuroscience*. <https://doi.org/10.3389/fnhum.2013.00222>

Hull, K., & Schmittl, A. (2015). A Fumbled Opportunity? A Case Study of Twitter's Role in Concussion Awareness Opportunities During the Super Bowl. *Journal of Sport and Social Issues*, 39(1), 78–94. <https://doi.org/10.1177/0193723514558928>

Iadevaia, C., Roiger, T., & Zwart, M. B. (2015). Qualitative Examination of Adolescent Health-Related Quality of Life at 1 Year Postconcussion. *Journal of Athletic Training*, 50(11), 1182–1189. <https://doi.org/10.4085/1062-6050-50.11.02>

- Isaac, J., Tamminen, K. A., Hutchison, M., & Comper, P. (2014). Coping strategies used by varsity athletes with a concussion. *Journal of Exercise, Movement, and Sport*.
- Ives, J. C., Alderman, M., & Stred, S. E. (2007). Hypopituitarism after multiple concussions: a retrospective case study in an adolescent male. *Journal of Athletic Training, 42*(3), 431–439.
- Kinsella, E. A. (2006). Constructivist underpinnings in Donald Schön's theory of reflective practice: echoes of Nelson Goodman. *Reflective Practice, 7*(3), 277–286.
<https://doi.org/10.1080/14623940600837319>
- Kroshus, E., Baugh, C. M., Daneshvar, D. H., & Viswanath, K. (2014). Understanding Concussion Reporting Using a Model Based on the Theory of Planned Behavior. *Journal of Adolescent Health, 54*, 269–274.e2. <https://doi.org/10.1016/j.jadohealth.2013.11.011>
- Levac, D., Colquhoun, H., & O'Brien, K. K. (2010). *Scoping studies: advancing the methodology*.
- Madrigal, L., Robbins, J., Gill, D. L., & Wurst, K. (2015). A Pilot Study Investigating the Reasons for Playing through Pain and Injury: Emerging Themes in Men's and Women's Collegiate Rugby. *The Sport Psychologist*. <https://doi.org/10.1123/tsp.2014-0139>
- Malcolm, D. (2009). Medical Uncertainty and Clinician-Athlete Relations: The Management of Concussion Injuries in Rugby Union. *Sociology of Sport Journal, 26*, 191–210.
- McCrory, P., Meeuwisse, W., Dvorak, J., Aubry, M., Bailes, J., Broglio, S., ... Vos, P. E. (2017). Consensus statement on concussion in sport—the 5th international conference on concussion in sport held in Berlin, October 2016. *British Journal of Sports Medicine*.
<https://doi.org/10.1136/bjsports-2017-097699>
- McGannon, K. R., Cunningham, S. M., & Schinke, R. J. (2013). Understanding concussion in

- socio-cultural context: A media analysis of a National Hockey League star's concussion. *Psychology of Sport and Exercise*, 14(6), 891–899.
<https://doi.org/10.1016/J.PSYCHSPORT.2013.08.003>
- McManus, A. (2006). Management of brain injury in non-elite field hockey and Australian football--a qualitative study. *Health Promotion Journal of Australia*, 17(1), 67–69.
- Meier, T. B., Brummel, B. J., Singh, R., Nerio, C. J., Polanski, D. W., & Bellgowan, P. S. F. F. (2015). The underreporting of self-reported symptoms following sports-related concussion. *Journal of Science and Medicine in Sport*, 18(5), 507–511.
<https://doi.org/10.1016/j.jsams.2014.07.008>
- Moreau, M. S., Langdon, J., & Buckley, T. A. (2014). The lived experience of an in-season concussion amongst NCAA Division I student-athletes. *International Journal of Exercise Science*, 7(1), 62–74.
- Oja, B. D., & Bass, J. R. (2016). Safety or Style ? An Examination of the Role of Football Equipment Personnel. *Journal of Applied Sport Management*, 8(1), 26–46.
- Omalu, B. I., Hamilton, R. L., Kamboh, I. M., DeKosky, S. T., & Bailes, J. (2010). Chronic traumatic encephalopathy (CTE) in a National Football League Player. *Journal of Forensic Nursing*, 6(1), 40–46. <https://doi.org/10.1111/j.1939-3938.2009.01064.x>
- Parsons, J., & McLeod, T. V. (2012). A qualitative investigation of the emotional and familial effects of sport-related concussion in adolescent athletes. *Brain Injury*, 567–568.
- Patricios, J. S., Arden, C. L., Hislop, M. D., Aubry, M., Bloomfield, P., Broderick, C., ... Raftery, M. (2018). Implementation of the 2017 Berlin Concussion in Sport Group Consensus Statement in contact and collision sports: A joint position statement from 11 national and international sports organisations. *British Journal of Sports Medicine*, 52(10),

635–641. <https://doi.org/10.1136/bjsports-2018-099079>

Pfister, T., Pfister, K., Hagel, B., Ghali, W. A., & Ronksley, P. E. (2016). The incidence of concussion in youth sports: a systematic review and meta-analysis. *British Journal of Sports Medicine*, *50*(5), 292–297. <https://doi.org/10.1136/bjsports-2015-094978>

Provvidenza, C., Keightley, M. L., Reed, N., & Green, S. (2013). Exploring parent and youth perspectives of the influence of concussion on school, sport and life: a qualitative study. *British Journal of Sports Medicine*, *47*(5), e1.51-e1. <https://doi.org/10.1136/bjsports-2012-092101.6>

Safai, P. (2003). Healing the body in the “culture of risk”: examining the negotiation of treatment between sport medicine clinicians and injured athletes in Canadian intercollegiate sport. *Sociology of Sport Journal*, *20*(2), 127–146.

Sarmiento, K., Mitchko, J., Klein, C., & Wong, S. (2010). Evaluation of the Centers for Disease Control and Prevention’s concussion initiative for high school coaches: “Heads Up: Concussion in High School Sports.” *The Journal of School Health*, *80*(3), 112–118. <https://doi.org/10.1111/j.1746-1561.2010.00491.x>

Snedden, T. R. (2013). Concept analysis of concussion. *Journal for Specialists in Pediatric Nursing*, *18*, 211–220. <https://doi.org/10.1111/jspn.12038>

Strand, S. L. (2013). Post-concussive syndrome in a female basketball player: a case study. *Open Access Journal of Sports Medicine*, *4*, 123–125. <https://doi.org/10.2147/OAJSM.S46124>

Sullivan, S. J., Schneiders, A. G., Cheang, C.-W., Kitto, E., Lee, H., Redhead, J., ... McCrory, P. R. (2012). “What’s happening?” A content analysis of concussion-related traffic on Twitter. *British Journal of Sports Medicine*, *46*(4), 258–263. <https://doi.org/10.1136/bjism.2010.080341>

Tjønndal, A. (2016). NHL Heavyweights: Narratives of Violence and Masculinity in Ice Hockey.

Physical Culture and Sport. Studies and Research, 70(1), 55–68.

Wendt, J. T., & Miller, J. J. (2015). “Ref, Is This the Final?” Concussion Issues at the 2014 FIFA

Men’s World Cup: A Case Study. *Journal of Legal Aspects of Sport*, 25, 1–9.

Wongvatunyu, S., & Porter, E. J. (2005). Mothers’ Experience of Helping Young Adults With

Traumatic Brain Injury. *Journal of Nursing Scholarship*, 37(1), 48–55.

<https://doi.org/http://dx.doi.org/10.1111/j.1547-5069.2005.00015.x>

Chapter 4

Factors that contribute to concussion reporting among CFL players:

A constructivist grounded theory study

4.1 Introduction

A concussion is the result of physical trauma to the brain, causing altered cognitive function (Anderson, Heitger, & Macleod, 2006). This trauma leads to a complex pathophysiological process that can result in a variety of symptoms that may vary substantially in severity across individuals. The Berlin concussion consensus statement describes a sport related concussion (SRC) as “a traumatic brain injury induced by biomechanical forces” (McCrory et al., 2017). McCrory et al. (2017, p. 839) also lists several common features that help clinically define the nature of concussions:

- *SRC may be caused either by a direct blow to the head, face, neck or elsewhere on the body with an impulsive force transmitted to the head.*
- *SRC typically results in the rapid onset of short-lived impairment of neurological function that resolves spontaneously. However, in some cases, signs and symptoms evolve over a number of minutes to hours.*
- *SRC may result in neuropathological changes, but the acute clinical signs and symptoms reflect a functional disturbance rather than a structural injury and, as such, no abnormality is seen on standard structural neuroimaging studies.*
- *SRC results in a range of clinical signs and symptoms that may or may not involve loss of consciousness. Resolution of the clinical and cognitive features typically follows a sequential course. However, in some cases symptoms may be prolonged.*

Depending on the population, the most likely events to cause a concussion are vehicle accidents, falls, sports and recreational activities, and assaults (Anderson et al., 2006). Among sports-related concussions for males, football has the highest incidence of concussions, as football is one of the only sports where major head impacts are (inarguably) part of the game (Robbins & Conidi, 2013). Although teaching safe tactics has risen in popularity in youth football (e.g., "Heads Up Tackling" programs, that teach players to keep their heads out of play

as much as possible), there will always be an elevated risk of concussion in football, as compared with other sports, simply due to game mechanics (Football Canada, 2015). There is no prevention technique that will prevent blindside hits that they do not see coming, for falls where the head impacts the ground, for accidentally colliding helmets with a teammate, or for large body impacts that result in concussion. Football is a collision sport. Even if you removed tackling and blocking from football, there are ample opportunities for colliding with other players (or with the ground), and so the total prevention of concussions is an unrealistic goal. What can be affected, however, is the treatment and management of concussion – and it necessarily falls to players, trainers, physicians and coaching staff to carefully monitor play, and implement evidence-based interventions and protocols when a concussion is suspected.

Being a football player creates its own set of factors that contribute to players playing through injury. Players may be pressured by teammates, coaches and owners to “play through the pain” and return to full contact as quickly as possible after an injury. Tom Coughlin, former New York Giants head coach, has admitted to walking past players who were injured and saying “Oh, look at the sick, lame, and lazy” (Calandrillo, 2005). As Calandrillo (2005) notes, there can be conflicts of interest among owners, coaches, trainers, players, and even the team physician when it comes to the safety of a player. Consider, for example, the dual loyalty of the team physician to the employer and the athlete-patient. The physician wants to stay employed, and so he or she may be forced to choose between decisions that benefit the employer, and decisions that benefit the long-term health of a player. There are similarly powerful social and economic forces that exist behind the scenes that could shape the behaviors of players. Calandrillo (2005) suggests that one remedy for this would be to have the physicians hired by the player’s union, and not the teams, so that they are loyal only to the players. Although this

could work, players still need to accurately report their symptoms, so that physicians can facilitate an appropriate return-to-play. The CFL has the team trainers and physicians making the call for players returning to play and has also asked officials to report players with suspected concussions to the coaching or medical staff during games (CFL.ca Staff, 2011).

4.1.1 Purpose of Study

The purpose of this study is to identify factors that contribute to the process of reporting concussion symptoms experienced by Canadian Football League players. These factors will be used to construct a theory that describes the process that professional athletes employ when making a decision to report or not report a concussion.

4.1.2 Research Question

What factors contribute to the process of reporting concussion symptoms in Canadian Football League players?

4.2 Methods

The qualitative methodology used in this study was constructivist grounded theory (Charmaz, 2006, 2014). Using constructivist grounded theory helped give an analytic edge, as a systematic process it enhances the analytic level of the work. Constructivist grounded theory promotes openness to a range of theoretical understandings and fosters developing tentative interpretations about the data through coding and categorizing. Within this grounded theory study, data collection and analysis took place simultaneously, each part informing the other to inductively construct theories from the phenomenon under study (Thornberg & Charmaz, 2014). Grounded theory fits well with the aims of the study, as it allows research to be undertaken to investigate individual and collective actions, along with social and social psychological processes, as well as the meanings that individuals ascribe to their actions

(Thornberg & Charmaz, 2014). This fits well with the process of reporting a concussion symptom, and specifically the meanings that the participants ascribe to each action taken around the process of reporting.

In looking at the elements of the research design (Crotty, 1998; Kinsella, 2012), my research framework is comprised of: Interpretivism (Epistemology) → Constructivism (Theoretical perspective) → Grounded Theory (Methodology) → Interviews (Methods). Using an interpretivist stance, grounded theorists can begin to answer the “why” questions when comparing relations between the “whats” and “hows” of these contextualized social processes (Charmaz, 2012). Following a *constructivist* grounded theory approach, a literature review on the studied area was done *before* data collection takes place.

Together, my participants and I constructed data that highlighted the factors that contribute to the process among CFL players of reporting concussion symptoms, with the hopes of creating categories and generating a theory about this phenomenon. The end goal was to highlight the social processes that shape their decisions and approaches to reporting, so that further research can be undertaken to raise awareness about factors that may be persuading players to put their brains, careers, and lives at risk.

Information that is collected within this study is specifically acknowledged to be tied to participant perspectives and is not, therefore, considered to be an “objective” representation of information that may be true for all. From a constructivist perspective, the notion of truth is replaced by claims of viability or functional fit (Goodman, 1978; von Glasersfeld, 1995). According to von Glasersfeld (1995), viability requires that an action, concept, and conceptual operation fit the purposive or descriptive contexts in which they will be used.

Grounded theory was used because it is a research methodology that allows researchers to flexibly and systematically construct an original analysis, and generate analytical ideas about the data collected from interviews about a specific phenomenon or process (Charmaz, 2006; Thornberg & Charmaz, 2014). Grounded theorists look at how participants explain their accounts, what actions occur in these accounts, and what analytic sense can be made from the participants' accounts (Charmaz, 2006). Using grounded theory, research can be undertaken to investigate individual and collective actions, along with social and social psychological processes, as well as the meanings that individuals ascribe to their actions (Thornberg & Charmaz, 2014).

4.2.1 Data Collection

Following Charmaz (2006), data collection was constructed through interactions, observations, and materials gathered, and by being open to what I heard, saw, and sensed. Semistructured interviews were used for the data collection and are typical in constructivist grounded theory studies (Charmaz, 2003).

The interviews had open-ended questions, and allowed the researcher to follow lines of inquiry within the interview, which allowed the researcher to explore what he believed to be the phenomenon's important topics. Following Charmaz's (2006) suggestions, the pre-planned interview questions were designed to retrieve rich data about the social processes of not reporting concussion symptoms. The interview questions were developed after reviewing the literature on the topic and, after consultation with the research group. Research questions were designed to explore participant views of concussions in sport, their views about football as a career, and the importance they place on football. Other questions focused on specific experiences they have had with concussion symptoms and the steps they took when dealing

with reporting or non-reporting of these symptoms. The question guideline followed is listed in the appendix. Interviews were on average 30 minutes long. Data collection started in August 2017 and continued until June 2018.

Memo writing took place during the entire process and involved creating analytic, theoretical and conceptual memos about the questions that arose during the research process (Thornberg & Charmaz, 2014). Memo writing helped to theorize and keep track of questions and thoughts about codes and categories, so that I could return to these thoughts when more data was available.

4.2.2 Data Analysis

Data analysis took place throughout the data collection process and continued following completion of data collection. Coding took place after the first data collection and involved labeling segments of the data, to summarize what small pieces of the data are about (Thornberg & Charmaz, 2014). Coding was based on a constructivist perspective that comes in at least two forms or phases: initial (open) coding, and focused coding (Thornberg & Charmaz, 2014). Following the recommendations of Charmaz (2006, 2012), codes were initially labelled that were gerunds, to show actions and processes. Codes for other non-gerunds were also accumulated for further constant comparison. Codes relied on interaction with the data, and with other codes, and these codes needed to fit the purpose of the study to be used. Theorizing from a constructivist approach involved attending to implicit meanings and processes when interpreting implicit statements or actions and not just the overt processes.

One component of grounded theory is theoretical sensitivity, which refers to theorizing about the data, looking at the data from multiple perspectives, making comparisons, following leads, and building on ideas about categories (Charmaz, 2006). Theoretical sampling is another

common component and technique that uses the sampling of new data to enhance a tentative theoretical category, by checking and refining constructed codes and categories, in an attempt to define the properties and implications of a category (Charmaz, 2012; Thornberg & Charmaz, 2014).

Constant comparative methods were used continuously throughout the grounded theory process to develop codes, concepts and to help guide theoretical sampling. This involved constantly comparing data, codes, context and categories that fit the data, and showing patterns in the data. Theoretical sampling lead to a theoretical saturation of the concepts in this study. Theoretical categories were made, and these categories were filled out, checked, and saturated with data using constant comparative methods. Many grounded theory authors suggest that when data is collected and compared to current data and codes, patterns are found, and when no more patterns arise, saturation is said to occur, which was the case in this study (Thornberg & Charmaz, 2014). Theoretical saturation was further achieved in this study by following suggestions by Charmaz (2006) to compare conceptual categories to one another and to the contexts, to the extent the authors felt an elastic theoretical saturation was achieved, where categorical information was crystallized until the exhaustion of all abstract leads (Charmaz, 2006). Theoretical sampling was used to guide questions for future participants and exploring categories. After interview one, leads and insights were followed that targeted interesting areas of insight, such as the normalization of symptoms. Using theoretical sampling to change questions and target new leads after each participant added to the rigor of the findings and led to the elastic saturation where no further leads were showing in the last few participants. It should be noted that due to the constructivist nature of this research, this theoretical saturation does not

discount that future attempts to stretch the limits of these categories even further with different perspectives is possible.

The data collected was viewed with the understanding that multiple meanings could be attributed to participant experiences, and that there could be multiple perspectives on these experiences (Crotty, 1998; Goodman, 1978; Meichenbaum, 1993). The theoretical categories generated were derived from an analysis that required my own constructivist understandings of the phenomenon, and my interpretations of what the participants were reporting to shape the representation of the findings. Constructivist grounded theory seeks to show the complexities of a particular world views, and actions (Charmaz, 2006). It is plausible that another researcher undertaking the same study, could construct different categories, owing to implicit utilization of his or her own preconceived understandings and knowledge.

From a constructivist psychological perspective, Kelly (1955) argues that everyone takes an active role in their own interpretations. And as Albert Einstein once said “Physical concepts are free creations of human thought, and are not, even if they seem to be, solely determined by the external world” (Einstein & Infeld, 1950, as cited in von Glasersfeld, 2001). From a constructivist perspective, every individual is responsible for his or her actions and thoughts (von Glasersfeld, 1995). Even though different interpretations are possible, this does not devalue or discredit any particular claims, as the interpretations represent co-constructions that are based on the interaction between the researcher's interpretations, and participants accounts of the phenomena in question (Charmaz, 2012). The data created is a result of the weaving together of the participants and my own situated knowledge. This approach was chosen as the author doing the analysis and interviews was a CFL player for six years. Having an insider's perspective may help to explore hidden meanings and cultural assumptions the participants may

hold, with the end goal of exploring deeper into the issues surrounding concussion reporting. It was anticipated that participants saw the main author as more of a peer, and that this will minimize the “power” differential between the researcher and participants. To this end, I incorporated ideas from the autoethnography presented in Chapter 2 about my experiences within the CFL culture, and then transitioning to graduate school while undergoing two previous concussions in the CFL. Included are thoughts about concussions and hiding symptoms, pressure to play through injury, identity issues at the start of the study and these ideas were included into the constant comparison technique on several occasions throughout to ensure preconceptions were not masking other ideas and meanings. For further reflexivity and information about constructivist grounded theory and how it will impact this study, please refer to Chapter 1 of this dissertation. The information presented in Chapter 3 on qualitative sport-related concussion research also influenced the research and interpretations done during this study.

4.3 Participants

The participants in this study are current and retired Canadian Football League players. Some of the players interviewed have had a diagnosed concussion in their career, while some are players who have experienced concussion-like symptoms at some point during their career but did not report them to the team. Players were not interviewed until they had completed the return-to-play process. Participants were male and were between 20 to 32 years of age and had various levels of experience from rookies to one player who has been out of the CFL for 4 years.. Participants were ethnically diverse and were either Canadian or American citizens. Participants played various positions such as runningback, wide receiver, lineman, linebackers, defense back and special teams, which potentially allowed for more varied experiences. This

lack of restriction with regards to age, position, and ethnicity should give the study a good representation of the Canadian Football League.

The Canadian Football League (CFL) is a unique league to study, as it is a professional league where players are potentially playing for their income. This job requires a six-month commitment, with not a lot of time and energy for another full-time career. The off seasons are spent working out and training for the next season, and many players also have part-time work during the offseason to supplement their income. Maintaining a career is, however, very hard to do alongside football and training. Although the daily time required working may be longer in the National Football League (NFL) in the United States, it is somewhat similar in physical job expectations. Importantly, the salaries for players in the CFL are minimal in comparison to the salaries for players in the NFL. Most, if not all, players will need to find a post-football career and accordingly, players need to be competent and healthy following their retirement from professional football.

There is also a great deal of pressure that accompanies the drive to maintain one's position on a team. Six months is a very long season for football, as compared with high school and university football, and so there is a large risk for ongoing problems if a player has a concussion and does not report it.

4.3.1 Sample size

10 participants volunteered for this grounded theory study.

4.3.2 Recruitment

Recruitment was done by contacting gatekeepers to participants, such as the CFL and CFLPA. Snowball sampling was also used, wherein players, coaches, and agents reached out to players who may be interested, and had these individuals contact the researcher. Participants

were currently playing, recovered and playing, or retired and not playing. No participants that were going through the concussion recovery protocol were interviewed.

4.4 Instruments and tools

Participants were interviewed in person, over Skype video, or on the phone. Materials used during the interviews were audio recording devices, a pen and paper as a backup and for the researcher's memo notes. The Skype and phone interviews were conducted in the researcher's office, and the in-person interviews were at the participant's home or at another location specified by the participant. Transcription was done by the author who did the interview and analysis. NVivo 10 software was used to aid in transcribing, coding, and interpreting the data using the applications diagramming and comparison tools. An audit trail was kept within NVIVO, documenting decisions made in relation to data collection and analysis.

4.4.1 Quality Criteria

Charmaz's (2006) constructivist grounded theory guidelines were followed to ensure that quality and coherence to the methodology were guiding features. To stride for further quality of the qualitative research in general, the guiding criteria "Bridging Conceptions of Quality in Moments of Qualitative Research" by Ravenek and Rudman, (2013) was used for this study.

4.4.2 Ethical Considerations

It has been suggested within the literature that confidentiality was a concern for some CFL players in the past. As stated by Delaney, Caron, Correa, and Bloom, (2018):

"Athletes have expressed concerns during past concussion research that identifying themselves on concussion questionnaires may lead to the information

somehow being used against them in the future". Contacting these players away from the team helped ensuring this confidentiality" (p.8).

Not assessing individuals currently in treatment for concussion was a requirement of the ethics board at the time that the project was approved, and therefore no participants were currently in the treatment phase for concussions while being interviewed. After having returned to play for some time, the player may be more inclined to reflect on the risk they took or any underreporting of symptoms that they might have done. For these reasons, this was a retrospective study.

4.4.3 Claim of bias

From a constructivist research perspective, my values and my lived experience as a CFL player are not divorced from the grounded theory process (Ponterotto, 2005). It is important to present one's assumptions and preunderstandings to the fullest extent possible so that future readers can more accurately follow the interpretations and generation of theory rendered and to understand how these cognitive processes shaped their interpretations and constructions. With a constructivist lens, theories are reliant upon the researcher's interpretations and analysis of the data, to construct a shared understanding of the researched phenomenon (Gardner, McCutcheon & Fedoruk, 2012). These shared understandings deny the existence of one interpretation of objective reality, and show how shared interpretations of phenomena are created, with social interactions in defined contexts leading to understanding how meaning is developed (Gardner et al, 2012). Within my interview process, it is my hope that the power relations between myself and participants will be decreased given my own past experiences with concussion and the CFL, and the possibility that the participants will see me as more of a peer and as someone who can relate to what they are going through.

I also suffered two concussions during my CFL career, and that gives me an insider perspective as to what it can be like to be a CFL player with a concussion. Being a CFL player for six years afforded me important insights into the culture of the CFL that I believe will enhance my interpretive capacities. I did not presume to know what all players go through during their concussion experiences. I aimed towards consensus in interpretive constructions while remaining open to new possibilities (Guba & Lincoln, 1994). My reflexivity about my assumptions, preunderstandings and knowledge about the CFL and with concussions were for the purposes of aiding in data collection and analysis, and as a means of enhancing rapport and dialogue with the participants (Ponterotto, 2005). When I anticipated or had a hunch about relevant dimensions of the experience of a player/participant, I directed inquiries at that area to confirm. Some examples, drawn from my own autoethnography, are the fear of looking injury prone to a new team, and gambling that it would work out, knowing there was a risk involved. I also inquired further with respect to information gathered through the literature and checked if those areas are relevant to participants. During this process, I needed to be careful not to “force the data”, and I maintained the realization that I am constrained by the objects I am operating on (Kinsella, 2006). If an idea did not fit with my data, I tried to see it from every possible angle, but I did not try to force it to fit.

A self-interview was done using the questions developed for the interviews prior to engaging in interviews with participants, this was further used to interpret how I thought about each topic before analyzing participant data. Many discussed topics surprised me and were not identified in the self-interview, such as normalized symptoms, assessing the biomechanics of the contact, self-assessment strategies, and the expectancy of similar concussion symptoms to previous concussions.

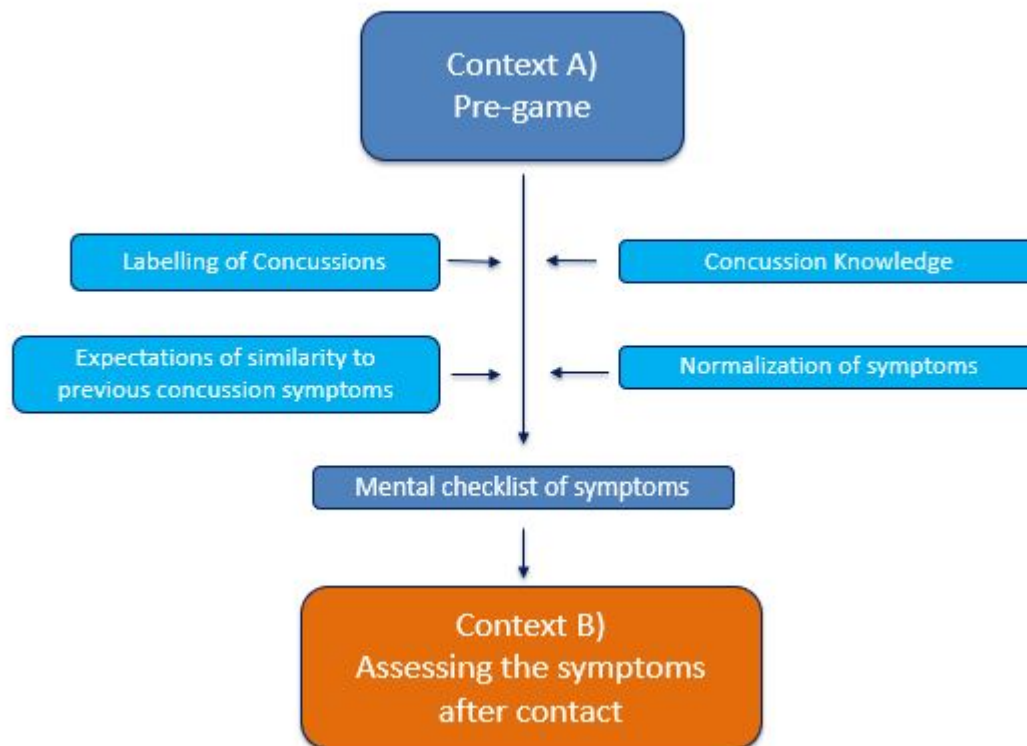
4.5 Findings

4.5.1 Context A – the Pre-Game Thoughts

The first context refers to any time prior to a game or practice where many factors influence how the participants thought about a potential concussion event happening. Participants and the interviewer discussed several premeditated thoughts that they had about concussions before an event had taken place. They constructed many factors that may influence their mindset about concussions going into a game or practice. During this context, “the pregame”, players have a chance to mentally prepare themselves with the thoughts they have about upcoming concussion symptoms or events they may experience, and how they may react to them based on several factors. Interesting to note is that at this level of play, playing football represents the primary source of income for most players, and they go to work with the knowledge that there is the potential that they will sustain a concussion every time they play or practice the game. It is important to know their mindset about these potential problems going into the games or practices for this reason.

Figure 4.1 shows a diagram of the factors effecting the “Pre-game” context. During this context several factors contribute to a mental checklist of symptoms that players go into a game or practice with. **Knowledge** about concussion symptoms did not seem to be an issue among the participants in this study, aligning with current research by Delaney et al. (2018). This was expected, as concussion clinics containing information on concussions are presented to CFL players at the beginning of every season since 2010, and posters have been displayed about the symptoms in all of the locker rooms since 2010. Comparing these findings to previous research by Naidu (2013), it suggests that the clinics have had a positive impact on concussion knowledge (Bucholtz, 2013).

Figure 4.1 – Context A



Many participants appeared to have a **mental checklist** of the symptoms that may alert them to a concussion, which were likely to be influenced by the symptom list given to the players. Interestingly, many of these participants believed that symptoms of a concussion for themselves would be **similar or the same as those of their previous concussions** that they had in their life.

It crossed my mind but I was like “naw,” cause if the other one is mild, this one doesn't even feel like that one.

Participant 6

The symptoms were the same for me every time.

Participant 1

Filtered out from this mental checklist was a **normalization of symptoms** that was discussed with some participants, acknowledging symptoms like headache and neck pain as a common side effect of playing.

Yeah, if I had, like, any numbness or, like, physical pain besides a headache, I guess that would be it, but if it was just kind of like, "oh there's that same headache again." No big deal kind of thing. I guess that was my thinking.

Participant 5

I got started games with a headache, right. Just, you know, either heat, stress. I'm also prone to migraines so I'm so used to having them that just, they don't really phase me anymore.

Participant 9

I've been fine – like after the game I have had like neck soreness and stuff, but I think that's just me playing a hard day of football, to be honest with you. Because that's, like, how it is every day after the game, or practice, or whatever. So um, nothing where the next day I'm dizzy or sensitive to something.

Participant 7

These **normalized symptoms also appeared to have the most influence if they were drastic** enough to create a concern for the participant. One participant played an entire season with weekly headaches following games.

I was pretty much going through a cycle each week of, I would have like crippling headaches for like our off day, like the day after games. And then we would have practice day one, day two, day three, so I'd have pretty much headaches through all those. And then by the time we get to walk-through day

I'd feel pretty good. And then game day I'd feel OK. And then obviously I'd go and hit people during game day and it'd be like a constant cycle of that. So I pretty much went through 22 weeks of that and it didn't, obviously didn't feel great and I was, I didn't feel great about doing it, but that year was a tough one for me because, uh, we had a new head coach in _____ so I was going to prove myself there. And then halfway through the year I got traded. So I obviously wanted to prove myself in _____ as well. So there was no, I didn't feel like there's any way to kind of to let up because I felt like if I took a seat on the bench at I would lose my job.

Participant 5

Participants discussed the role **labeling of concussions** may have on the importance they give them, such as brain injury having much more of an impact than concussions. This was also shown in a previous study by Delaney et al. (2018). Also discussed was the times you can get your “bell rung” where players involved in contact that gives them short-term concussion-like symptoms. This topic is further explored in the next context, but in the pre-game context, this is a premeditated thought about what possible concussion-like events can happen to them during the game, and they are potentially preparing to play through some of the these less severe events.

I feel like I was pretty aware of the whole concussion thing and I guess for me it was always, like, take a second and, like, see how I feel, or if I come to, or if I feel normal within a few seconds I was okay, you know. I think for me if I been knocked out, woken up, and not remembered anything, then I was like “okay I

got a concussion” – but anything that was semi-okay then I was like, “oh it’s not a concussion”, or “I’m okay.”

Participant 2

Many participants were determined to make it as a professional football player from an early age, and confident in their ability to do so. They have potentially been dreaming of this moment to make it professionally since they were very young, and this may influence player decisions when they are (or near) the finish line. Knowing how far you have come, and not playing due to an injury that you are unsure of, creates a situation in which the likelihood of gambling on your concussion symptoms may be increased, given player proximity to their (potentially life long) goals. This is something that was discussed with the participants, and most of these participants knew at some point early on in their lives that they had the potential to play professionally.

From when I started in highschool, you’re always kinda striving for the next thing, whether it’s the next game, or whether it’s to go on to college, or go on to pro. And there’s always the next thing, and I think in the CFL you know you’re always trying to pave your path and make your name for it. And I think each year it was just kind of a chance to prove yourself to the league, to your team, to your coaches, to yourself. Just constantly striving for that next plateau, whether its personal or team-oriented.

Participant 2

I suspected this from my own background, having played since I was 6 years old. I knew that I was grateful that I did not have any concussion symptoms before playing in the

championship game during my final year in the CFL, as I suspect I would have played regardless.

A common code most players play by is the **importance of playing at the highest speed** they could play at, going 100 percent and not play too cautiously on every play to avoid injury. Participants spoke of the cultural assumption among football players, that if you are not playing at your highest speed, or if you hesitate during a play, then you are more likely to get injured. There is no research data to support this, but the logic is that a slow player is more of a target, and you likely will not perform the required movements to succeed on the field if you are holding back. This is something I believed as a player, and still do. It is certainly an **idea that is widely accepted and circulated throughout the CFL culture, and as such, it may have an influence on how they play.**

Especially in football, if you hesitate it's kind of, that's where you can get hurt or that's where you don't perform. You got to go full speed, there is no hesitation. But if you're a little hesitant going into something that's when you play poorly, or that's when you do get hurt.

Participant 2

Just play or you're probably more likely to get hurt.

Participant 3

This assumption impacts on player responses to concussion-like symptoms. Players may think they have mild symptoms, but still believe that playing as hard and fast as they can is the safest way to play.

I think sometimes your hardest critic is yourself and you know there's that fine line. I've had a moment where I've got hit, and you know like I'd be a little

nervous to get hit again in the head, you know. You hear sometimes like you have a concussion, and you can get hit again, and you could die, or it could cause serious problems, you know. So I think its like you got to get hit hard, and this goes for any part of your body, but you kinda have that little fear like, well it's a fine line of like "I don't want to get hit again, but I also don't want to be to precautionary."

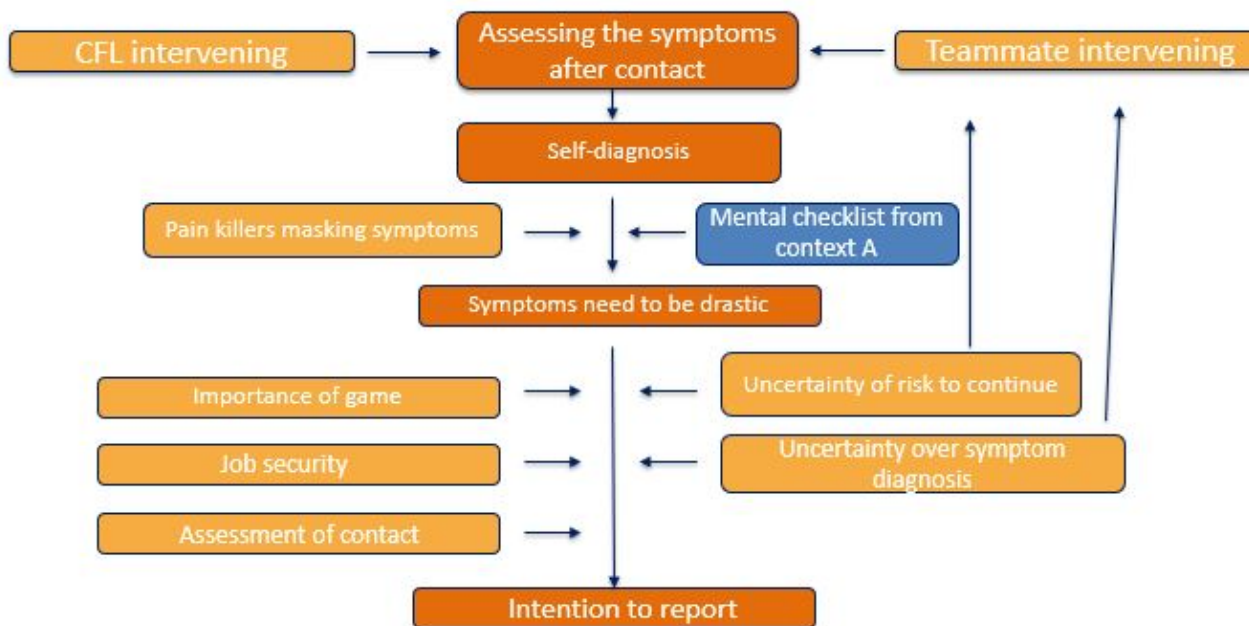
Participant 2

4.5.2 Context B – Self-Assessing the Symptoms after Contact

Once the game is underway, players engage in a new mode of thought, and are in a heightened state of readiness for the game. During a game, the pressure is intensified, and decisions made quickly on the field can be driven (at least in part) by emotion.

Figure 4.2 shows the factors contributing to the context B – Assessing the symptoms after contact. During this context, the CFL staff or a teammate can intervene when witnessing a player take an impact that appears to have a chance to cause concussion. If this does not happen, it is now up to the player to decide through self diagnosis if they believe they have a concussion or not. At this stage, the mental checklist from context A is used to decide what symptoms they have and if they are concussion related. Painkillers may have an influence here if symptoms are masked. If they do detect symptoms, it was discussed that they need to be drastic to believe they had suffered a concussion. If they decide symptoms are drastic enough, than the following factors of the importance of the game, job security, uncertainty of risk to continue, assessment of the contact, and uncertainty of symptom diagnosis factor into their intention to report.

Figure 4.2 – Context B



One very interesting topic that came up through the interviews was the discussion of short lived concussion-like events that players described as getting their “bell rung” or a “ringer” which were hits that cause temporary moments where players seem dazed or seem to be experiencing some concussion-like symptoms. Many times this is referred to as “getting your bell rung” and is seen by the players as an event that can lead to a possible concussion but is not identified as a concussion by the players.

Yeah, things like having your bell rung, being shook up, or just having a headache you know from a hit or from a game. But I think at the time it kind of came along more of the territory of you know you know you're going to get hit...you're getting hit...you remember getting hit...and it's just, you know, that's what happens. You get your bell rung, you carry on and you keep playing.

Participant 2

Younger participants were more aware of the potential for these events to be concussions.

The older players now know the dangers, but admit that they may not have, in their early days.

When asked about if he had “ringers” during his playing time, an older player stated:

As far as a concussion...I thought a concussion is that you were knocked out cold, had to be helped off the field, or carried off the field.

Participant 2

This quote also illustrates the knowledge gap among older players, before concussions became so widely publicized.

These ringers happened to every participant and they each had their **own individual relationship with them**. Some players waited them out for a period of time, and monitored their own symptoms. When the symptoms cleared, they were ready to go, and feel that the hit did not result in a concussion.

There were a couple times where I felt like I was on the edge of being concussed. And I don't know if, perhaps, I was – but it went away so quickly like if I got my bell rung, while I was low on oxygen, and you just kind of spaced for a second. My first thought is, “uh oh, I'm going to enter that state of being concussed where I'm just lost”, but a couple times it quickly subsided, and I was right back to normal, no headaches or no ill effects. Now I'm sure arguably there is some damage on some level, but I was right back to normal.

Participant 1

The time taken for the symptoms to clear, before worrying about concussion, appeared to be different for each participant, with some noting it to be closer to 10 seconds, and others around 1 minute. Interesting to note were the assumptions that these events would generally take a certain amount of time to subside, or that steps could be taken to alleviate the symptoms

– such as “taking a moment,” or splashing one’s face with water. Some players even self-diagnosed their own symptoms, and chance of concussion, during these times. They used strategies for self-evaluating concussions that they had used throughout their life, such as attempting to remember information such as times and dates. This is an issue I dealt with as a player, and this prompted my inclusion of this line of questioning within the interviews, but I did not necessarily expect to hear some of the strategies that players used in their self-assessments.

Ya, ringers. Yeah you just feel like your heads like, “oh wow that was a good pop,” you sit there for a couple minutes and you go “ooh,” then like, you know, it goes away, and you're fine.

Participant 9

I've made tackles where it's like, I make the tackle and it's kind of like my ears are ringing. It takes a second just to kind of shake it off, and then snap back to it and I just keep going...I actually run through the date and time, the score of the game, I just try to see if I can remember, like, those little things, and I am usually all right. Or I think I am with self-diagnosis.

Participant 10

Yeah, like I'll take some hits or whatever, or I'll take a hit and I'll be a little bit blurry. I'll literally just shake my head, or like close my eyes, or like put water in my face and just wakeup. And I'm ready to go. Yeah.

Participant 6

I got hit pretty hard, and definitely had a moment in the game where, my helmet's shaking, my head just ringing, and it takes a good, like, ten seconds to

just kind of let it all settle. And you know, I've been able, fortunately, to be able to just keep playing. Yeah, ten seconds. I know that's the right number just because the play happens so fast in football, like it's seven seconds or so. I'm immediately back into play. There hasn't been a time where I'm like, "no I gotta stay", like "wait guys." So I'd say about seven to ten seconds.

Participant 7

Yeah if it's not gone in like 60 seconds let's say then something's up.

Participant 1

The following are quotes with descriptions of these events taking place.

Uh ya, I had the headaches after games, the neck pain after games. There's actually been times in a game where, like, I hit somebody, and then I saw stars, and everything went black for a minute, and then I kinda came to and kept playing. My first thought was "wow, shit their ground was hard." It was a weird tackle the guy like pulled me down by my back and like through my face, like straight into the dirt and my head just went boom. And I like stood up right away, and I just had, like, the stars come and everything went black and I kind of walked to the sidelines without being able to see, I was just listening for my, I listened for my coach, you know, I could hear his voice. He asked me like, "what's wrong with you?" I was like, "nothing, I just need a sec." Like you know, knocked the wind out of me. And then once like I came to, once I could see again I was like "okay, I am good." Which was about a play, so maybe a minute. I just thought, like, I blacked out – quick little knock out. I have boxed before, I have been knocked out, you get right back up, it just takes you a couple

minutes to come to. I was fine after that. But I mean like I didn't have headache after the game. My vision was fine.

Participant 9

I got hit right in the face by another helmet. I remember I was seeing green – everything is green, everything had a tint of green to it for maybe 10 - 15 seconds. So, I just automatically assumed I was okay, and I just, it just kind of rung my bell for a little bit. But then everything went back to normal, so then I was fine.

Participant 2

Got my bell, my first year, I just got my bell rung, saw stars shook it off and was good, I never left [the game], never left the field of play. So like I hit him, literally like shook it off like within like two seconds, then like pursued the play, like ran to the huddle, got to play call and I'm like "alright let's ride".

Participant 3

One common factor discussed was that their **symptoms would need to be drastic to alert them that they may have a concussion.**

Same way with any injury – like if you were to hurt your wrist, you're just like "well it's my wrist – enough to like keep me out of this game" kind of thing. Or "should I just kind of put a brace on it or tape it up and just like keep going." So I think, concussions are the same in that respect and that you're, you really have to be really bad to kind of come out.

Participant 5

If it was a super severe headache, if I couldn't remember a play, if I like, didn't know what, I've seen guys go to the wrong bench because they were so messed up like walk to the wrong bench.

Participant 4

Yeah. It's like when I've been hit hard, that's what it feels like – an out of body experience. Where it's like “stay calm.” I'm back in my body, [but] if I'm like still floating, then there must be an issue. I think it would probably just be feeling out of place...as soon as I feel out of place and I don't know what's going on, then I would be like, “I got to get off the field.”

Participant 7

Job security was discussed as a factor that can influence a participant before the season even starts. Participants were convinced that they had a **limited window** within which to showcase their skills, and secure a position on the team. Accordingly, participants were willing to hide concussion symptoms and injuries, for fear of loss of playing time in which to prove themselves, or to achieve goals. Rookies may experience more job security issues as they have had less time to think about life after football, and limited opportunities to see other players transitioning. A rookie is fresh to everything, and may be expecting (or hoping to have) a long and successful career. Other players that may not have established themselves to a new team and are “on the bubble” so to speak, or players that have had diminishing performances may also be more susceptible to play through a concussion so they do not miss opportunities to secure their position.

If I was an established vet I wouldn't be practicing. I would see it as days off, I would like immediately go to the trainers, I wouldn't spend the extra money to

go see another physiotherapist and you know, it's just the fact that it's, I'm there to establish myself, um, and trying to make a name for myself and I think that's goes for anything. Everyone knows that everyone knows their kind of line and position. You can't just jump to the wheel and say, "Hey, I'm taking a couple of days off." Like it's not gonna work like that.

Participant 7

As a **rookie there can be more confusion about their job security**. This leads players to want to hide injuries and do everything they can to prove they deserve a spot on the team.

I'm in the position I was in and obviously I didn't do a good job of communicating with, um, with coaches or what not, But I felt like I was a, if I did share that I was hurt, I would get kicked off the team. I didn't want to jeopardize my opportunity by saying that I'm injured, and have them let me go. So I just kept my mouth shut, which was actually not a good thing because now I'm going out there and putting shitty tape on my, you know, on me so...

Participant 10

“Tape” in this last quote is the game or practice video recordings that players are evaluated on, or as one participant noted:

[Your] screen time. Every time you're on the field, right in between those lines. That's your resume...so you always want to pad the resume.

Participant 8

One older veteran player discussed how he thought he would have responded as a rookie compared to being a veteran.

Yeah, at this, at this point, probably my career, yeah, cause I see there's a bigger picture now. Earlier in my career I was probably too much of a meathead to be like, "yeah, I got a concussion."

Participant 3

100 percent I would try and hide it as best as I possibly could, cause your first year is one of your worst years, they can just send you home whenever they want. You can't miss practice, you can't do anything pretty much. If you roll an ankle, you tape it up and you go. You don't have any wiggle room, you don't have a name for yourself yet.

Participant 9

I believe that question is subjective to your position within the team and the league. The older I got and the more, you know, the more you gain a relationship with the trainers and stuff, I think I would come out and tell the trainers, but when I was young and hungry and you never, never know if you're going to be on the roster after next week, umm, I might be more hesitant and want to get more plays and chances on the field show my skills.

Participant 8

The **importance of the game** for the team was discussed as having a similar effect as job security. Helping your team win crucial games or playoff/championship games can influence a player to fight through pain and injuries as they feel the pressure to perform during these crucial moments for themselves and their teams. These influencing factors have an influence on the players willingness to **gamble** on a worse health outcome for a chance at a better outcome of the game.

So it's like high risk, high reward. People go play the roulette tables every day.

Participant 3

You're just gritting your teeth at that point. This is the biggest stage... getting in the league is one thing but getting to the big dance, and you have a concussion.

Man, they might have to knock me out. I'll deal with it later.

Participant 6

The importance of the game was a factor that may influence coaches or trainers decisions to allow a player to return if they are claiming to be fine and pass the concussion tests, even if there is suspicion from a previous event.

He got super rocked. It looked like he passed out. It looked like he got knocked out. And then he got up and ran off and I don't think they did anything because it was a playoff game and they needed him. That was a situation where I was like "Damn. You guys are really just going to let him do that." But he's the guy and he wants to play. I saw that and I was like "Woah, alright." Yeah, just said like... sometimes they're on it and then other times you're like, "oh, well we need him to play, he's good" and that's it.

Participant 10

Many participants discussed the impact of the hit, and where the force originated – and they understood that concussion could be caused by hits that did not directly impact their head. However, some participants suggested that they would be more cautious if they *received* a big hit than were the *initiators* of a big hit. Here we discussed how **participants still may be influenced by their assessment of the contact that caused them to have symptoms.**

Well, like I think there's two kinds of ways to look at it. Like, if I initiated the contact, sometimes I think, I think I might have thought different of it, like I might, I might have made the hit, and then been like, "oh shoot." Like I hit that guy really hard. Like I rattled myself, and then just kinda shake it off. Um, but if I got it, it would have felt a little bit like, "man, I got lit up." It's kind of like how you feel, I don't know if it made me more agitated or what. What I would say to myself is can I still play, like finish the game, can I still function?

Participant 4

Again, **overall concussion knowledge does not seem to be an influencing factor** for these participants, it is the **assumptions, expected results, and contextual factors** that are employed while assessing the "ringers", that can ultimately have an influence on whether they report having a concussion or not.

As discussed in context A, many participants discussed thinking back to previous concussion experiences to assess whether or not the current injury is a concussion. For example, if they blacked out in their first concussion, they may think that they need to black out in order to have sustained a concussion. An attitude of **"this is the way concussion looks for me"** instead of considering that it may be a new experience each time, and basing their judgment on the presentation of symptoms.

We discussed that it is very **difficult to determine whether or not you have concussion symptoms, and that this results in gambling on the outcome.** Some symptoms they can assume are from other causes.

I guess nauseous, I would maybe put a little more towards, maybe, heat exhaustion, or over-heating.

Participant 8

Some participants just flat out assume they will be fine, but in our discussions, we constructed the narrative that players assume there is some level of risk, but are also just uncertain as to whether or not they will cause more damage to themselves by continuing play. This could lead to risk-taking behaviours that may encourage “playing through symptoms.” When asked would you be concerned playing through symptoms Participant 1 responded.

No, and I'm one of the last people that should be saying no, because I've studied some of the effects of it. But to me, I don't have enough clarity on the confirmed results, or outcomes of getting multiple concussions, and so there's no definite answer (if you go back in and get hurt again this will happen). I don't know that statement, there's no equation. It's, it'll probably get worse, and you could probably do damage, but we don't know. So, that option usually take the poor choice, and go back in.

Participant 1

Some participants mentioned the possible downplaying of concussion symptoms if they think the symptoms will not come off as serious enough.

I think it is such a touchy subject because, you can alert them, like, “Hey, I may have a concussion,” it might seem like you're looking for an easy way out. So, it's almost like you're in an instance where it's like, unless you can really tell you have a concussion, you're not going to go to them and be like, “hey I have a

concussion, you know, take me out”...it's like, no. I don't think that's proper etiquette as a football player.

Participant 10

This is an issue as participants noted that they needed to be **certain** that they have a concussion if they are going to come forward about it, also due to **the knowledge that trainers must respond when a concussion is possible, in “an all or none” response.**

If a participant goes to a trainer and reports concussion symptoms, they assume they will then going to be on the protocol. Participants did not seem willing to report a *potential* concussion, only a *certain* concussion. This is different from other injuries where they have a slight tweak or injury and may get an initial look, and be cleared to play, even if they brought the symptom to the trainer themselves.

You think you have it, then they're going to say you have it, you have a concussion, they are liable. They have to say you have a concussion. So you have to weigh those options. Right? “Can I go through this?” “Can I, do I need a rest?” “Like what?” “How is this going to impact my career?” All these are important.

Participant 4

This quote emphasizes the context, specifically, in that the assessment of the symptoms must happen immediately during the assessment context. These players are also potentially concussed during this context, which adds even more variables to the already complex context in which the assessment is happening.

It puts pressure on you now to be like, OK, like “How's it going to make me look?” “What does that mean for my career?” “If you could play, like how

many, how many games would you be out?” “What does it mean for your paycheck?” “What does that mean for your playing time?” “What does that mean for your stats and your aspirations and your goals?” “What does that mean?” It's a big picture thing.

Participant 4

Gambling on these hits and self-assessing symptoms can be magnified by the fact that the one doing so **may have just sustained a concussion just seconds before their self-assessment**. As one participant stated...

The state of mind you're in, you're in no state to assess the risk.

Participant 1

The **importance of the game and the importance of the player to that team's success** were constructed as influences that participants witnessed as to reasons players played through symptoms. These same factors were also discussed as having the potential to influence coaches and team staff to allow a player to play after recovering from a recent concussion if that player declares that they are fine to play and do not have concussion symptoms. Again, this relates to **job security and the gambling** that the player is willing to do, at that stage in their career.

Career milestones or contract details, such as bonuses, could influence a player to play through a concussion. On the contrary, playing concussed was also discussed as a poor decision, not just for your health, but for your performance on the field, and ultimately your career. Football players understand, and are frequently reminded, that if they are injured they will perform poorly on the field, and as a result be judged based on that performance, especially if nobody knows they are injured, and assume they are playing to full capacity. Participants were fully aware of this balance between limited time to prove yourself, but not putting yourself

out there under poor conditions where you could greatly tarnish your reputation. While there remains a “tough it out” culture in football, it is also accepted by (and reinforced by) coaches to not play if you truly are injured, and are only going to tarnish your game film, and potentially injure yourself further. In that regard, **there is also no difference between a concussed player playing poorly, and a player who is just playing poorly, to anyone watching *that doesn't know that the player has a concussion.***

Many participants discussed drawing the line for reporting concussions if they had a **loss of function**, such as feeling wobbly, or if their equilibrium is off. This may relate more to performing poorly, than to concern over function. Most concussions do not cause an immediately obvious loss of function – and this may help to explain why many players will play through a concussion, but not an injury that causes loss of function (such as an ankle sprain).

I would have assumed, well you know, it's a fine line. You never want to pull yourself out of a game. You know, as long as I was functioning, and wasn't taken off the field, that I don't think I would have said anything. I feel like if I have my wherewithal and able to function well enough to have like my dexterity and catch a ball and or here with the quarterback saying then I would feel like I was okay.

Participant 2

Yeah, what scares me is when I have wobbly legs. Okay. Cause the first time I had wobbly legs I knew something wasn't right.

Participant 6

Pain killing drugs are also something that needs to be addressed with each player who may be suspected of having a concussion. Many participants discussed taking pain killing drugs

throughout a season or for each game or practice, although some participants chose not to take them. If the drugs are masking neck pain, headaches, or other concussion symptoms, this may play into a player's ability to recognize and report those symptoms. Toradol is a common pain killer that most participants discussed using at some point in their careers. These participants also stated they never factored pain killers into the equation when assessing their concussion symptoms. Pain killers are generally given to players, but nothing is stopping them from taking them on their own before games or practices. **The best assessment of concussion symptoms requires that trainers and clinicians know exactly which medications are on board, prior to diagnosis.**

Yeah. And I probably wouldn't factor it in, just because I know how I think it's in the moment. Like, I feel amazing. I feel like I'm, I can play again, so I wouldn't factor in just because of my experience with Toradol and how it helped me.

Participant 7

One participant assumed it likely wouldn't mask a strong symptom as his neck pain still came through even with pain killers.

Personally I don't think so cause like I've taken Advil before games and you know, at the end of the game my, my neck is still sore because you know, you hit people sometimes in the game you're going to get sore regardless.

Participant 9

One way to remove some of the self-assessment bias during ringers, is to have **another party intervene** and assess a player that may have gone through a potential concussion-causing collision. Younger participants discussed the **CFL's intervention strategy, and how it was**

very effective at targeting players who may have had concussion-like events on the field and removing them immediately from play.

Yeah. I think they are better with the protocols, I think that informed us a little bit better about what we're looking for, as far as, like, people have assigned looking for concussions now. They see one sign, they take the guy out right away.

Participant 6

Concussions are taken very seriously by the league compared to other injuries.

Yeah. No, not anymore because of the stipulations they have behind them, and all the procedures that the league has put in. But like a sprained ankle, or wrist, or you know, anything little like that. It's like, "OK, dude, it's a sprained ankle. Tape it up, let's play. Concussions are concussions. Like, if you have symptoms...I'm pretty sure they shut you down for a minimum 2 weeks now.

Participant 9

This is a **proactive strategy** that seems to be **having a great effect on player safety and concussion awareness**, as one participant mentioned that the league sometimes seemed "overconcerned", and he knew that after every big collision he goes through, there is a chance he's going to get pulled off and put through the test, even if he feels completely fine.

As soon as there any helmet-to-helmet contact, of any kind of that upstairs thinks is bad, your trainer comes up to pull you aside, and get you a sideline conky test, to make sure that you're OK. They are very on top of it right now. I mean like running down on, you know, running down on kickoff, I have a guy blindside me and I'm like, "agh shit," you know what I mean? Like you get up, like, I'm fine.

You go to the sideline they're like, "hey, take off your helmet. You got to come sit over here and do this with us." Like "what do you mean," "well you just got ear holed so we have to make sure you don't have a concussion" and I'm like "I'm fine." "Well you have to do it." "OK, do it I'll be fine and keep playing."

Participant 9

Even with initial feelings of annoyance at being pulled off prematurely, Participant 9 agreed that these strategies are effective and necessary, to combat the potential hiding of concussions by the players, and for their own safety. As did another participant in the following quote.

I blacked out for like 2 seconds, I got back my mind, and my legs felt a bit jiggly when I stood up and I was good after that. And I think I could have played the rest of the game, but, they took me out of the game. But then after the game I felt.... I was like "man, maybe it was a good thing I didn't play", because that night I would close my eyes and see flashing lights, I didn't feel like myself.

Participant 6

These discussions lead me to believe that these younger players now expect to be assessed after big hits. With the players knowing they may have to have their concussion symptoms assessed by a third party, this may **lead to greater self-awareness of concussion symptoms** by players starting to assume that they will have their concussion symptoms checked out as soon as they have undergone a big hit on the field, hopefully creating an association between the two, so they assess themselves more often. The habit of assessing concussion symptoms after every big hit a player takes, could lead to players thinking about their symptoms immediately after every big hit.

Tricking the current protocol was brought up by two participants as something they had noticed, or done themselves throughout their careers. Again in this quote we see the reaction to compare this concussion to a previous one and then the tricking of the protocol due to this assumption.

I realized that I got knocked out, all the trainers around. OK. And then I, uh, like I was saying that other times with concussions you feel a sting after kind of ringing, or you feel a fog. I didn't feel a fog with this one. I just knocked out, I got back up, I did the protocol. But I'm a smart guy. It's not hard to trick the protocol. They asked you to remember certain words. It's like cat roof something else you know money, knife, and bag or something. I just recited the words, and actually told another player, then I recited them and I asked him. And by the time they asked me again, I knew what the words were. So I went back and played.

Participant 4

However, I believed the underlining cause of wanting to trick the protocol in that moment was the belief that they do not actually have a concussion, which in that instance was based on the present injury not showing the same symptoms of fogginess as his earlier diagnosed concussion. Others **disagreed with players who wanted to risk gaming the protocol.**

Some guys can hide it well. Now you also get some guys be, like, "oh, I'll make sure I kind of dog it a little bit on my concussion test, so if I ever do get rocked, and I write it, then I'll be okay." Straight up, I've heard people say it and I'm like, "OK, bro, you do you. It's your brain, it's your life."

Participant 9

Participants were **very comfortable with their CFL training staff** and praised them for their efforts, and the attention given to the players in the concussion recovery process.

There is a lot of care given, and attention to doing the right things. If someone needed to be there, to wake you up every couple hours or something, to make sure, or at least highlight the fact it needed to be done. Where it wasn't just like, "you have a concussion, go home and get better." It's like "do this and this," there was, like, a fair bit of urgency.

Participant 1

Also a big discussion was had with each participant, about the **role participants would play if another player had visibly been showing concussion-like symptoms during a game, and did not report them to a trainer**. Participants answered similarly up to a point, then divided in their opinions. All participants said that they would first hope the concussed player would know themselves, and come forward if they were sure of it. Especially in the face of uncertainty about their own symptoms, they know **how difficult it is to know if you have a concussion** and would rather leave it up to the player as that's what they would want from others.

I trust them on their own judgment, because I wouldn't want somebody, if I took a big hit, and everybody was like "are you okay? are you okay?" And then I'm like, "yeah, I'm good." I wouldn't want someone to be like, "yeah, he should be on it."

Participant 8

If they were not going to come forward, all participants said they would tell that player directly that he should be going to seek help for his concussion symptoms. Where participants

divided, was if the player would not report obvious symptoms, and was potentially putting himself in danger. Some participants still did not want to be the person to report another player, for fear of being the person to jeopardize someone's career. It was clear that many pressures were involved.

Like, you're looking out for them but like, it's also like you don't, you don't want to put them in a situation where they're not playing "because" you told somebody. And now they're, they're fine, but they're still not playing. You don't want to be the person to do that.

Participant 10

Participants noted that players also **care for each other's long-term health** and noted that if they thought another player was completely unable to make decisions for himself, they would step in to prevent serious injury. This topic had mixed final opinions, but seemed to come from the same place, which was **uncertainty about the concussion and fear of the consequences to another teammate's career** by stating that he has a concussion. In the end, if they were absolutely certain that a player was in danger, they would do something, such as tell the team trainer.

For one I would tell him to go tell the trainer, you know, I mean that's one of the things I wouldn't do. Because you know, you start doing stuff like that, and unfortunately you could affect somebody else's job. Their livelihood, that's how they pay their bills, and feed their family, right? You would hope that if their body was that bad, that they'd be able to do it on their own, but straight up, I'd tell them like, "you got to talk to a trainer." Ya, I would tell them they have to. I, I personally wouldn't walk up to a trainer and be like "Yo, this guy's rocked.

You should check on him.” Unless he was like really bad, then I might have to, if I could tell that he was, like, really bad, and I’d tell him to go tell them. But if he’s like “no bro no bro” then I’d be like okay well somebody’s gonna have to tell them. Because you know at the same time, you know, it’s his job, but you’ve got to look out for your boys. Because the next hit, you know, it could kill him, potentially.

Participant 9

Participants wanted to be cautious not to overstep boundaries or be too cautious.

I probably would mention it to a trainer. I don’t know about a coach because they’re kind of caught up in their own stuff, but I might tell a trainer. Just because you’re, I guess, to a point where you’re kind of just like, their concussion might be so bad that they’re not even aware that they were walking around like a zombie right now. Or like they can’t see that their pupils are the size of dinner plates, so maybe, I’ll go mention it to somebody and then. But yeah, I guess that’s as far as I’d go... Without being like overly cautious, you know, I don’t want to be like a helicopter parent, and keep checking on everyone’s heads. But yeah, but like made a point of saying like, “oh my I got a pretty scrambled brain right now.” I’d obviously say, like, “ok maybe go check it out” and if they didn’t, I just might mention it to a trainer.

Participant 5

One participant discussed the **normalization of concussion symptoms** happening when witnessing and assessing other players going through symptoms.

See that [intervening on another players concussion reporting] didn't even cross my mind. I think that's a good point. But at the same time, just like just being so dialed in with what you're setting is and how you've always seen it as kind of like, it's just another thing. "Oh guy, my head hurts", okay? It's not that big of a concern if someone got, like, symptoms. Basically, if the guy was, like, literally like bleeding out of his nose or something, I'd be like, "OK, like we definitely have to address this issue." But it's the fact that you hear it all the time. My head is spinning, my head is hurting – my head! You know what I mean? Like [a teammate saying] my head might be spinning. It's just like you were playing football [what did you expect?].

Participant 7

Described below is one time Participant 4 assessed a teammate for a concussion and his thoughts about the situation.

One time ____ got his bell freaking rocked. I watched him like you know when you see it, I watched him get up and then stumble, and kind of like stumble away and I am like "Bro, are you okay? Like ARE YOU ALRIGHT?" and he's like "Man, I got my bell rung." Right, and then you kind of look him in the eye and you kind of look like, "do you know what day it is?" and he knew what day it was and he knew that he got hit, I was like "can you play, are you okay?" and he's like well...[explained what was going to happen if he came out]. If you're coherent enough to be like okay "If I come out, so and so is going to come in, and this and that and that, then you're good."

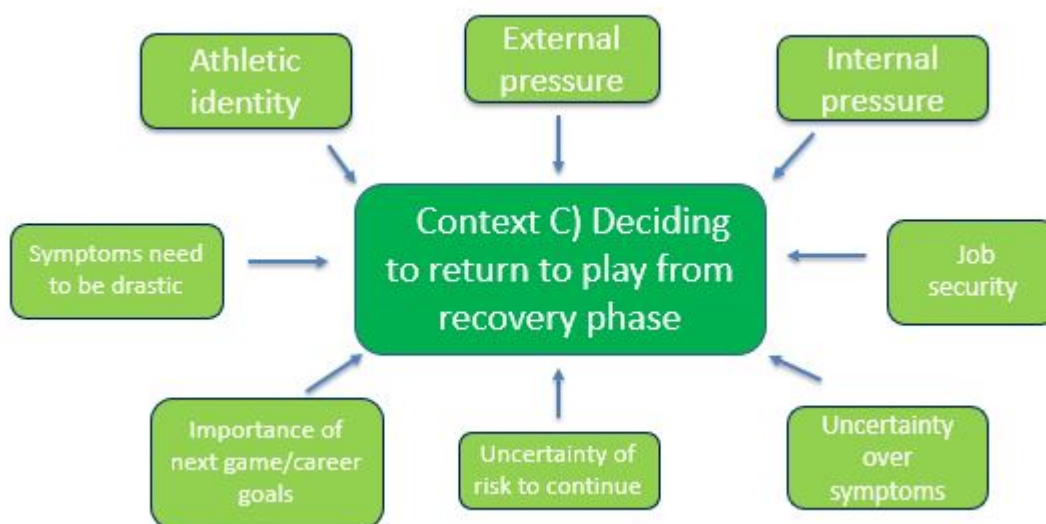
Participant 4

4.5.3 Context C – Recovery and Returning to Play

During the recovery stage, following a hit that may have resulted in a concussion, or concussion-like symptoms, participants maintained a check on any developing symptoms, and any that are drastic or out of the ordinary. During this context, the participants are assessing their concussion symptom recovery, and return-to-play potential if they were diagnosed with a concussion.

Figure 4.3 shows the factors influencing context C. Many factors influencing them at context A and context B, factor into context C. Factors such as job security, uncertainty of symptoms, uncertainty of risk to continue, need to drastic symptoms, and the importance of the game or career goals.

Figure 4.3 – Context C – Deciding to return to play from recovery phase



Some participants discussed **taking it easy after games or in the following practice if they feel they may have had too hard of a hit, or a ringer that they were concerned about.** Here we discussed how players may hide symptoms from other players.

I have seen guys who have taken big hits, uh, when you, you know, when you're ready, set out for the night and you want to, to have a guy's night out with the

boys, celebrate. And they're like, "I'm just going to go home and grab a couple of bags of ice." So it's more, I think guys still trying to cover it up, if they're, if they're concerned, I don't think they'd be more open to be, to be out there freely and really say, "Hey, I think I took a concussion man I'm going to chill at home." I think they will more so be, I'm good. You know, "I'm just going to go to sleep tonight."

Participant 8

Participants talked of self-assessment during this stage. During this stage, many of the same influences appear, such as job security, gambling on symptoms, expected symptoms, painkilling drugs, the importance of the next game. Some participants are influenced to return to play for **personal goals**. One participant had a goal of playing a full season of 18 games. Goals like this may have an influence on a players willingness to tough out symptoms for a game.

I haven't really made it until I finished the entire season and I've been successful... I would, I would be really satisfied if I could just be healthy and play 18 games.

Participant 10

Again, participants were looking for drastic or out of the ordinary symptoms, and not for normalized ones.

Yeah. I would wait it out because usually...especially in the migraine, like, I know what it does to my body, so the next day is usually still not the greatest if I get a really bad one. So either the next day, or the day after, like if it's still like a lingering headache, or like my eyes are really sensitive to light, then I'd be like

“okay I should probably go and talk to my trainer, make sure I’m not concussed.”

Participant 9

If I feel the effects after the game, if my head is pounding, like migraines, like you know, like just me not feeling comfortable after the game. I think it would be a huge tell, like the next day it's like OK. Because like I said, it's one thing to be sore after a football game, but if my head is just like feeling nauseous or something, then I would feel like “OK, there's something going on.”

Participant 7

Many participants seemed to have an idea about what their **identity was as a player**, most notably, a “tough resilient player, that could battle through small injuries.” In this quote, the participant also mentions how job security was an issue influencing his returning to play, through any injury that he could.

I've always been like prideful, like um, I'm a tough guy. “It doesn't matter what you do to me, I'm going to play” type deal.

Participant 9

These are **identities that may have been forged over a long time**, battling through other injuries and being praised for being a durable warrior-type athlete. This athletic identity that participants wanted to present can influence how they approach their recovery.

It's that fine line of, like, you don't want any injury, or possible injury, or maybe an injury, or concussion, to taint your credibility as, like, a reliable or tough individual. And if you are, you know, taken out of the game, it kind of goes against your identity, or your ability to be reliable, to be counted on.

Participant 2

There is still seems to be a perceived **stigma** around the word concussion within the CFL culture, or to be a player who has had a concussion and that it can taint your credibility. As one participant stated.

It's like the word with the stigma, elephant in the room.

Participant 8

However, this was not always the case, as **some participants valued their health first, over everything else**, and discussed how they would do everything they could to come out of a concussion the healthiest way possible.

My competitive edge will tell me to go. But I also listen to the doctors. Yo, my health is number one. You know, like, I don't have any kids, but if I had kids I got to think about them. It's not all about me, you got to think about your family, and what's best for them too.

Participant 6

This was partly due to the sport culture at the time, surrounding concussions, but also influenced by a **lifetime of growing up in a football culture where that was how concussions were being dealt with.**

At that time it was, we were still in that era of like "be tough...this is what happens in football."

Participant 4

I'm sure I did [have the tough it out mentality]. I'm sure I did because I was, you know, that's, that's what it was when we were in high school. Just, like, "suck it up, be a man, play ball", like that was it.

Participant 10

The first time I'd ever gotten my bell rung [as a young kid]. So I remembered waking, like coming to, and being on the sidelines, helped off the sidelines already. Back in those days they, you came to, you answer the few questions right, and they put you back in. Like, "good job, kid."

Participant 8

As was the case in all of the other contexts, **job security** played a significant role in the recovery context.

I feel like it'd be more in fear that, like, if I get hurt once my, you know, my injuries gone, they don't put me back in, and they just let me go. And I lose my job.

Participant 9

Participants also noted just how **difficult it was to prove the severity of their concussion symptoms**. When asked what were you concerned you about coming forward with your concussion symptoms Participant 5 stated.

Just the perception that 'cause concussions aren't one of those things that you can, you can point to a broken bone and be like, "see, it's broken," but concussions are one of those things that you can't, I mean, you can go through testing and stuff, but there's no real way to prove how bad it is and how bad you're feeling. So if I was saying like, "I'm constantly having headaches," I don't think that'd be a, I didn't think that would be a enough of a cause to take some time off, either practice or a game. And I liked playing so I didn't want to sit down.

Participant 5

It has to be bad to the point where you literally are out of it, and like the next day you're not feeling right. And that's where like the guy I mentioned two years ago[teammate who came out with a concussion], he, he didn't feel right the next day. Like that was like, man, like "I literally got to report this". So I think we're all having that thing. Like, OK, like, like how bad is it when I self-assess myself and then we need to be true to ourselves.

Participant 7

When asked about pressure to return to play from concussion, participants discussed that it was mainly **internalized pressure** that drove them to come back.

No I don't feel any pressure at all. I feel pressure on myself, but no pressure by the club.

Participant 6

I guess overall, like, pressure for myself to like perform. Pressure from, to not let your teammates down, and then pressure to prove yourself to your coaches.

Participant 5

One participant discussed the possibility that the external pressure was potentially constructed internally.

I would want to say external pressure, but not necessarily. It can be internal. So I think “I don't want to let my teammates and coaches down”, and I know they, you can tell in their voice, their tone, that “hey how you doing?” underlined with “you know when you coming back.” Even though you may not explicitly state it. So there is external, and maybe that's internally interpreted as external.

Participant 1

One participant discussed coaches understanding the situations of the players and acting as a positive influence to remove pressure and allow the player to take some time off.

They [the coaches] know, if you hit someone or you get it, they know, they know, like in the back of their mind, like your positional coaches more because they're more personable with you. If it's like they'll be like, “Yo, like you, you took a hit like are you alright” they know what you are like, they know you feel pressure to keep going. So like, you know, “you just kind of watch from the side, we want you ready for the game so you can take a little bit of time.”

Participant 4

Some participants discussed changing their play styles to be more cautious, after bad ringers, or diagnosed concussions for fear of reoccurrence.

You've just recently been damaged, so I think it's human nature to avoid the situation again – as much as you don't want to. And you want to avoid that whole scenario again, because it was probably a pretty long process – it could have been a week or more of sitting on your ass. So it definitely has effects on your play style, whether you want it to or not, and you really have to flip a switch and go crazy to totally forget it, coming across the middle or something. Depends how bad the concussion was, but you see it all the time. When receivers get smoked, especially head ones, and then they come back, and you'll see them, their last few steps going across the middle, they have no power, they're coasting, because their body, maybe their subconscious made that connection, that "last time I did this, me no remember so well."

Participant 1

I don't lead with my head. I run leaning forward, but I don't hit with my head. I learned my lesson in _____ those years ago when I rung my bell. I think differently than these meat heads. Longevity's the way. I didn't want to get hit. I just want to tag the people. I don't want to just kill everybody. I like my body intact, the way it is.

Participant 3

This was interesting as it went against the point mentioned earlier, about how many players feel that going 100 percent, all the time, is the safest way to play. However, these points could be referencing changing playstyle, more than effort and intensity given on each play, as shown in the following quote that some participants perceived some positions were able to get away with a safer playstyle than others

I think so, for sure. So my position in particular, there's ways to protect yourself. You know if you're an offensive lineman or something, you're kind of going head-to-head every play, even if you try not to – you don't really have a choice where as more of a skilled position, you can kind of work around that, or at least protect yourself a little bit.

Participant 2

Participants also discussed hiding not just concussions but other injuries, from team training staff, and **attempting to rehab their injuries on their own, or with outside help**. As one participant discussed his first-ever CFL camp and what he did with his injury, compared to how he would have taken care of it in college.

Coming in as kind of a free agent, I knew that they were interested and wanted me, so each rep mattered. I didn't get a lot of reps to start off with. So the reps that I got, like it mattered, right? So I knew my situation, and it was hard to, like, even go to the actual trainers [with an injury]. So like, trying to go to them would be, like okay, like they could be like, “oh, like he's not doing that great.” And so what I was actually doing, is I was going off to the side on our off-breaks, and I was actually going to a physiotherapist on the side, because it needed to be taken care of. No, I didn't even want the trainers to know. They did check it, and they actually diagnosed it like “oh just make sure you're staying with your exercises.” But I know, like even when they were diagnosing me, like I would fight through some of the things just so they would be like, “he's fine.” I know was popping a lot of, like, Tylenol, and I was just going and seeing the physiotherapist once again, staying on top of my exercises. It was terrible to

sleep. First day I knew it happened I knew that if I was back in college, I would not be practicing. I would report it, like I said, cause I knew I shouldn't really be playing, but I was in a situation where I had to, so that night I immediately looked for a physiotherapist nearby.

Participant 7

There are many pressures and influences weighing in on the players thoughts about reporting their concussions. This is a hard decision to make for players who love playing their sport are now making a living from playing.

But it's like when you know, when you hear about the effects of alcohol and tobacco, but you're an alcoholic or a chain smoker, it sucks because you realize the truth is right there in front of you, but you're like, I love this sport and this sport is my career. Now what do I do? A lot of guys were put into that line where it's like do I just stop playing right now was really the hardest part of it.

Participant 8

Participants were asked about future players and the possibility of their kids playing football. While answers were mixed due to many variables, concussions were not seen as a deterrent to the participants. They discussed how they can happen in many other sports or activities, and that they would only worry about them if they became a problem for their kid. All participants noted they would want their kids to be safe, and treat injuries seriously.

I would [let them play], I would also let them know that it's OK to be honest about whether or not you are hurt. Cause I know a lot of people in the football culture is a big teacher to "just suck it up," and that's what we've been told forever, right? "Suck it up, suck it up, be a man." But like, you're, you're

allowed to if you're hurt, you're allowed to take time off for that. At the end of the day, you only get one body, so you want to take care of it as much as possible.

Participant 10

4.6 Discussion

The presented findings suggest significant complexity within the decision-making process, when assessing whether participants should report a concussion, or whether they even have a concussion, and show how participants engage in decision making concerning reporting their concussion symptoms.

Football is, however, a game that is built around contact, and over the course of a practice, game, or season, players will take many impacts to the head that do not cause an immediate concussion. In the CFL, players play two preseason games, 18 regular season games, and possibly three playoff games, with practices in between. The players are also taking harder impacts than they are used to, as players are bigger, stronger, and more efficient hitters than they have grown up playing against. Although hits to the head are quite common, and do not always result in a concussion, there is evidence that these impacts may accumulate over careers, and lead to CTE (Hazrati et al., 2013; Omalu, Bailes, Hammers, & Fitzsimmons, 2010).

The CFL is taking steps to reduce subconcussive impacts, as much as possible. In 2018, they removed all contact from practices, which is a huge proactive step, that promises to drastically reduce the number of collisions that players go through each season. Hopefully, this will reduce the incidence of CTE among CFL players. Throughout the course of my interviews, and investigations into how concussions are being treated within the CFL, I have been impressed with the effort and decisions made to reduce the occurrence of concussions, and

increase player awareness, even set against the backdrop of their willingness to hide the injury, and play through the injury.

I began the interview process with a number of assumptions – including a concern that the CFL itself may not be taking concussions seriously, and that it may own a significant portion of the responsibility for flaws in concussion reporting. Through the interview process, I came to realize that this is not necessarily the case, and that the CFL appears to be making a genuine effort to support players in making the best decisions about their health, even intervening when they will not protect themselves.. The research done in this constructivist grounded theory study provides an important (and seldom heard) viewpoint that may add to the conversation as to why players may not be telling people about their concussions.

The current study locates itself within the current literature studying underreporting of concussions in different levels of sport. Many similarities exist with current literature for reasons to underreport, such as not wanting to stop playing, concussion knowledge, appearing weak to teammates, not letting teammates down, not wanting to lose a spot in the lineup. The current study expands on many of these ideas, but also localizes the research findings to a specific and unique population, finding population specific concerns. Using qualitative research, specifically constructivist grounded theory and having an insider to the population as the interviewer and analyzer, also adds to the uniqueness of the study.

Recent research by Delaney, Caron, Correa and Bloom (2018) on CFL players showed the most common reason for players not reporting a concussion was due to the players having felt that they had suffered similar episodes in the past, and that the current episodes posed little or no danger if they continued playing. This study showed also showed how knowledge of concussions does not seem to be a factor any longer with CFL players. When comparing the

findings from this current study to the Delaney et al. (2018) findings on why CFL players did not report their concussion symptoms, they can be used to provide supplemental factors surrounding the reasons they previously found. The reasons Delaney et al. (2018) found for not reporting symptoms were expanded upon when discussing the why questions related to each of the reasons. Reasons such as wanting to finish a game, and fear of missing future games, can be due to several factors discussed within this study, such as team and personal goals, importance of the game, and job security, which each have factors of their own. Fear of letting teammates down which was common in many studies on this topic were discussed as being potentially internally fabricated by players in some scenarios. Delaney et al. (2018) discussed a reason that the players did not feel their concussion was severe and felt they could still continue to play with little danger to themselves. This topic was further discussed as to why they did not feel they were severe, with factors of normalization of symptoms, labelling of concussions and ringers, expectations of concussion symptoms remaining like the ones they experienced in the past, not losing “function” and the possibility of pain killing drugs effecting their ability to detect the seriousness. Interesting findings separate were the use of pain killing drugs, assessment of the contact, athletic identity concerns, and assessment techniques used after contact. This study also contextualizes the findings to better locate when these factors are at play.

The underreporting or concussion symptoms is highly relevant to current sport and education policy, and is likely to be an important topic in future research. Even if something like sideline blood tests are available for immediate and accurate concussion diagnosis, it will still be the case that most concussion symptoms will need to be reported by the player before undergoing a test, and the concussion symptoms will still be hidden by the players and not

picked up by the spotters watching for concussions. There will likely continue to be tension between seeing a teammate undergo a concussion, and wondering what to do about it if they are not doing anything about it themselves. The uncertainty as to whether or not an individual has a concussion, the uncertainty about what that means for his career, and everything else he has tied to playing football within his life, creates a context that encourages players to gamble with their health – on the severity of the injury, the implications of that severity, and the probability of it happening again. It is important we continue to understand and explore this topic for these reasons.

4.6.1 Reducing the Uncertainty

Participants struggled with identifying concussions, and had overlap with short-lived concussion events. A definition needs to be addressed for the short-lived concussion events to better identify them as a concussion, and for the players to evaluate them consistently as a concussion event. Confusion about symptoms with other injuries should be stressed, to ensure that precautions are taken, and that players do not continue to make assumptions about what constitutes a concussion symptom. Findings placed a much-needed spotlight on what “ringers” are, in the CFL. These findings suggest that they are very important, due to their prevalence, and this language should be included in discussions surrounding concussion symptoms, so that players are not assuming that they “just got their bell rung”, without connecting it to a potential concussion.

The Berlin concussion statement describes short-lived, temporary signs or symptoms that fall within the current definition of concussion, and notes that there is a pathological process that may make it difficult to determine if an injury is a concussion, or just a transient state (McCroory et al., 2017). They suggest a player should be temporarily removed for

assessment, which should then be followed by further serial assessments. In the case of doubt, the Berlin consensus statement suggests that the player should be removed from the field of play, on the day of the injury.

Participants showed a strong tendency towards normalizing symptoms to which they are accustomed in games. Consequently, they indicated that they would filter these common symptoms out of their internal concussion analysis, even if they were concussion symptoms. Increasing player awareness of these normalized symptoms, perhaps by discussing them with a trainer, or trusted clinician, could help players factor these attitudes into their own self assessments. Players may also have a tendency to mask symptoms through the use of painkillers, and much like the normalized symptoms, this masking of symptoms should be factored into the self-assessments that players make when determining whether or not they need to report their injury.

According to Meichenbaum (1993), people construct narratives that they create as metaphors for their symptoms and situations, and these stories are what people live by, and base many decisions on. The idea of being a tough or resilient player, or wanting to promote the image of durability to coaches, can create tension between what is actually occurring, and what the participants want to display.

Participants struggled, in varying degrees, and at different points in their career, with job security, confusion, and worry. This is potentially a major concern with concussions, as the timeline for this recovery protocol is potentially quite variable. With other injuries, particularly musculoskeletal injuries, you tend to have a better idea as to how much time you are set to lose. The variability in concussion recovery, combined with a lack of diagnostic specificity and accuracy in symptom identification, has led to protocols in which the minimum recovery period

is not adjustable – which means that there is the perception that concussion reporting *always* results in a “loss of playing time.”

“Going on the protocol” also carries the connotation that you have had, and will always have had, a concussion – which still carries a stigma across the league. We need to reduce the stigma of concussion, perhaps by noting that when properly identified and treated, concussions typically result in a complete return of function. We may also want to encourage players to come to the realization that taking the time to fully recover from a concussion can be much more beneficial for their careers in the long run, than returning too early. Participants noted that there is less job security after injury when you are a rookie – as one participant brought up that as a rookie, teams can release you without pay, up until week 14, as soon you come back from an injury, compared to a veteran of 6 years who is guaranteed their full season pay beyond the 9th game of the season (CFL, 2014). This can (and probably should) be changed, to ensure that rookies do not have this extra layer of job insecurity.

Related to this, a pending contract (e.g., being in a year leading up to a new contract), or milestone (e.g., championship game) could cause a professional to play through concussion symptoms. Wanting to increase their perceived value, by appearing durable, may be a factor that impacts on concussion reporting.

A cultural idea raised by participants was how “playing at top speed” may improve one’s odds of avoiding injury. Right or wrong, this appears to have an effect on how some players will play, even with concussion symptoms. While participants stressed this idea, some participants reportedly enacted some precautions while playing, perhaps by changing up techniques or being less aggressive for non-essential contact. It was difficult to identify if this

was an indicator that something was wrong (possibly from a concussion standpoint), or whether players were altering their style of play as a result of their memory of past injuries.

It was also interesting to note participant attitudes around intervening when witnessing other concussion-like symptoms in other players – as this is part of the reporting process that is currently in place within the league. Data was constructed as to how some of the same influencers are shaping their decisions to intervene in the identification of concussion in other players (e.g., identifying whether or not the concussion symptoms “were real”, or expressing concern over the ramifications of reporting symptoms, with regards to job security).

Interviewing a mix of younger and older participants, provided a snapshot as to how the culture of concussions has changed over time. Results suggested a positive cultural shift within the league, leading participants to envision a more cautious future around concussions in the CFL. Concussion culture in the CFL has changed, and continues to change. Older players went through a confusing time surrounding the identification of their concussions, and operated in an environment that had significantly less awareness and concern, than is present today. The new culture is substantially more proactive, and players appear to better understand the mechanisms of injury, and are more aware of their importance. Unfortunately, underreporting still happens, owing to many of the influences discussed herein.

4.6.2 Limitations

The retrospective nature of this study may also be considered to be a limitation. However, Delaney et al. (2018) studied CFL players prior to the season, and noted that these players were potentially forgetting possible concussion events from a previous year. They suggested that future research should probably be done after the season to decrease these possibilities. Due to the use of Skype video to perform interviews across large distances, we

were able to interview participants closer to the end of the season when they were finished playing and home from the season, in this study. Although some of the interviews were done using the phone, research by Ward, Gott and Hoare (2015) has argued for the use of the telephone as a primary data collection tool within grounded theory research – and has suggested that it has as much credibility as face to face interviews. In fact, Ward et al. (2015) have even argued that this medium may confer some advantages, such as reducing the possibility of “feeling judged”, which may lead to more disinhibited responses.

4.7 References

- Anderson, T., Heitger, M., & Macleod, A. D. (2006). Concussion and mild head injury. *Practical Neurology*, 6(6), 342–357. <https://doi.org/10.1136/jnnp.2006.106583>
- Bucholtz, A. (2013). U of A research leads to enhanced CFL concussion guidelines. *Health & Medicine Week*, 969.
- Calandrillo, S. (2005). Sports Medicine Conflicts: Team Physicians vs. Athlete-Patients. *St. Louis University Law Journal*, 185–210.
- CFL.ca Staff. (2011). Working to promote concussion awareness - CFL.ca. Retrieved December 18, 2018, from <https://www.cfl.ca/2011/05/03/working-to-promote-concussion-awareness/>
- CFL. (2014). *CFL Collective Bargaining Agreement*.
- Charmaz, K. (2003). Qualitative Interviewing and Grounded Theory Analysis. In *Handbook of Interview Research* (pp. 675–694). 2455 Teller Road, Thousand Oaks California 91320 United States of America: SAGE Publications, Inc. <https://doi.org/10.4135/9781412973588.n39>
- Charmaz, K. (2006). *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis (Introducing Qualitative Methods series)*. *International Journal of Qualitative*

Studies on Health and Wellbeing. <https://doi.org/10.1080/17482620600881144>

- Charmaz, K. (2012). The Power and Potential of Grounded Theory. *Medical Sociology Online*, 6(3), 2–15.
- Charmaz, K. (2014). *Constructing Grounded Theory* (2nd ed.). Thousand Oaks, CA: Sage.
- Crotty, M. (1998). The foundations of social research. *The Foundations of Social Research*, 802, 1–17. https://doi.org/10.1007/978-94-007-7893-1_1
- Delaney, J. S., Caron, J. G., Correa, J. A., & Bloom, G. A. (2018). Why Professional Football Players Chose Not to Reveal Their Concussion Symptoms During a Practice or Game. *Clinical Journal of Sport Medicine*, 28(1), 1–12. <https://doi.org/10.1097/JSM.0000000000000495>
- Football Canada. (2015). Safe Contact Now Mandatory for Football Canada Coaches. Retrieved December 18, 2018, from <http://footballcanada.com/safe-contact-now-mandatory-for-football-canada-coaches/>
- Gardner, A., McCutcheon, H., & Fedoruk, M. (2012). Discovering constructivist grounded theory's fit and relevance to researching contemporary mental health nursing practice. *Australian Journal of Advanced Nursing*, 30(2), 66–74.
- Goodman, N. (1978). Ways of Worldmaking. *The Philosophical Quarterly*, 30(120), 279–281. <https://doi.org/10.2307/2219267>
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (1st ed., pp. 105–117). Thousand Oaks, CA: Sage.
- Hazrati, L.-N., Tartaglia, M. C., Diamandis, P., Davis, K. D., Green, R. E., Wennberg, R., ... L., E. (2013). Absence of chronic traumatic encephalopathy in retired football players with

multiple concussions and neurological symptomatology. *Frontiers in Human Neuroscience*.
<https://doi.org/10.3389/fnhum.2013.00222>

John Ravenek Candidate, M., Laliberte Rudman, D., & Reg Associate Professor, O. (2013).
Bridging Conceptions of Quality in Moments of Qualitative Research. Retrieved from
<https://journals.sagepub.com/doi/pdf/10.1177/160940691301200122>

Kelly, G. (1955). *The psychology of personal constructs*. New York: Norton.

Kinsella, E. A. (2006). Reflective Practice Constructivist underpinnings in Donald Schön's theory of reflective practice: echoes of Nelson Goodman Constructivist underpinnings in Donald Schön's theory of reflective practice: echoes of Nelson Goodman. *Reflective Practice*, 7(3), 277–286. <https://doi.org/10.1080/14623940600837319>

Kinsella, E. A. (2012). Knowledge paradigms in occupational science: Pluralistic perspectives. In *Occupational Science* (pp. 67–85). Oxford, UK: Wiley-Blackwell.
<https://doi.org/10.1002/9781118281581.ch6>

McCrory, P., Meeuwisse, W., Dvorak, J., Aubry, M., Bailes, J., Broglio, S., ... Vos, P. E. (2017). Consensus statement on concussion in sport—the 5th international conference on concussion in sport held in Berlin, October 2016. *British Journal of Sports Medicine*.
<https://doi.org/10.1136/bjsports-2017-097699>

Meichenbaum, D. (1993). *Changing Conceptions of Cognitive Behavior Modification: Retrospect and Prospect*. *Journal of Consulting and Clinical Psychology* (Vol. 61).

Omalu, B. I., Bailes, J., Hammers, J. L., & Fitzsimmons, R. P. (2010). Chronic traumatic encephalopathy, suicides and parasuicides in professional American athletes: the role of the forensic pathologist. *The American Journal of Forensic Medicine and Pathology: Official Publication of the National Association of Medical Examiners*, 31(2), 130–132.

<https://doi.org/10.1097/PAF.0b013e3181ca7f35>

Ponterotto, J. G. (2005). Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *Journal of Counseling Psychology, 52*(2), 126–136.

<https://doi.org/10.1037/0022-0167.52.2.126>

Robbins, L., & Conidi, F. (2013). Stop football. Save brains: A point counterpoint discussion.

Headache, 53(5), 817–823. <https://doi.org/10.1111/head.12104>

Thornberg, R., & Charmaz, K. (2014). Grounded Theory and Theoretical Coding. In U. Flick (Ed.), *The SAGE Handbook of Qualitative Data Analysis* (pp. 153–169). London, UK:

SAGE Publications Ltd. <https://doi.org/10.4135/9781446282243.n11>

von Glasersfeld, E. (1995). *Radical constructivism : a way of knowing and learning*. Falmer Press.

von Glasersfeld, E. (2001). Radical constructivism and teaching. *Prospects, 31*(2), 161–173.

<https://doi.org/10.1007/BF03220058>

Ward, K., Gott, M., & Hoare, K. (2015). Participants' views of telephone interviews within a grounded theory study. *Journal of Advanced Nursing, 75*(1), 12–21. <https://doi.org/10.1111/jan.12748>

Chapter 5

5.1 Emerging Insights

A blend of sport related concussions, qualitative research, my personal experience and experiences of other professional football players was explored within the three articles that comprise this dissertation. This dissertation explored broadly what has been done with qualitative research on sport related concussions, then looked specifically at an area where the researcher was also an insider in the underreporting of concussions by CFL players.

The first manuscript explored my experiences with concussion in football, and followed that topic in to a new setting to see how each culture influenced the way I thought. I situate myself with the topic and with my lens on qualitative research.

The second manuscript (Chapter 3), analyzed a broad scope of research that has been done on sport related concussions that used qualitative research methodologies. This chapter mapped out the terrain of sport-related concussion research that has been done qualitatively and showed a breadth of information to lay the foundation of what is known and what can be explored using qualitative methodologies. Knowing which areas have already been explored and what previous authors were suggestion for current researchers, lead to narrowing down the focus of the third study, showing where further depth could be added to a specified area of knowledge. The third manuscript explores the issue of underreporting with Canadian Football League players, using constructivist grounded theory. This chapter added depth into a specified area of knowledge found within second manuscript. Many contextual factors were discussed that lead to possible influences on the CFL players to underreport their symptoms, these were highlighted and discussed throughout. Comparisons to past research found in the previous chapter and other relevant literature was discussed. This dissertation led to the several

interesting insights that should resonate with athletes, coaches and clinicians that are dealing with these issues. As a result of the three interrelated studies found in chapters 2, 3, and 4, a great depth of knowledge has been explored on concussions for athletes, while narrowing in on athletes in the CFL. This research helps to explain why athletes in the CFL are underreporting their concussions.

5.2 Future Directions

Concussions are at the forefront of much research today. Many strides are being made to be able to properly diagnose a concussion, and biomarkers are being studied with the hope we can diagnose a concussion instantly and accurately. These sideline tests are not here yet, and athletes currently are for the most part expected to report their own concussion symptoms to trainers or coaches. Even if these are available at some point, athletes still must live and manage these concussion symptoms, and much is to be explored in other areas of the lived experience of a concussion in unique contexts.

It is still the case on almost every level of sport, and across all sporting domains, that concussions are being underreported. There is still a large number of unknowns as to why the concussions are being underreported at each level, and localized knowledge about these reasons has been suggested by many, but more research in these areas needs to continue. Qualitative research will allow for further exploration into these reasons for underreporting in these localized contexts. Even as an insider to my population studied, I did not expect to hear some of the view points I did while conducting the grounded theory study. As a former athlete who went through two concussions, information from the second manuscript resonated with me even across contexts. It is the hope that by highlighting these factors that influence these participants

at this level, others reading this research can resonate with the findings and incorporate the ideas to better their own lives and experiences with concussions.

Underreporting of concussions in the CFL happened for many reasons that were discussed in the final chapter and crossed over with information from the first two manuscripts. Much of these reasons or factors that influenced the participants crossed contexts. One important factor that was discussed in the final manuscript, was the idea of short-lived concussion events that take place quite commonly. These events should be highlighted in future research as player are making a distinction between them and a concussion, treating the two as separate or at least different stages of a concussion.

Uncertainty of the concussion diagnosis, symptoms, experience and recovery is a strong factor with concussions and is another area that can be explored further with different contexts. Job security was a problem throughout reporting in the final manuscript, and is something that may be able to be influenced by league rules or policies.

5.3 Concluding Thoughts

All around the world athletes are battling with the issues of concussions and how to best manage and treat them, and there has yet to be a solidified way of managing them for all that everyone is following. There are still many unknowns when it comes to dealing with concussions, and so many factors can influence the process. It was clear why concussion research was so relevant when I started this research four years ago, and over the time span of this dissertation research it has grown tremendously, both the qualitative and quantitative domains.

Research on concussions is growing rapidly in the areas of injury prevention, screening and diagnosis, treatment and management and mental and neurological health (Patricios et al.,

2018). There is still much to be explored with unique contexts, situated knowledge, lived experiences and insights that qualitative research can get at the heart of. On the quantitative side there are still many unknowns to be studied, including biomarkers, recovery strategies, protection devices, and protective training strategies. Clearly, much work remains to be done.

5.4 References

Patricios, J. S., Arden, C. L., Hislop, M. D., Aubry, M., Bloomfield, P., Broderick, C., ...

Rafty, M. (2018). Implementation of the 2017 Berlin Concussion in Sport Group Consensus Statement in contact and collision sports: A joint position statement from 11 national and international sports organisations. *British Journal of Sports Medicine*, 52(10), 635–641. <https://doi.org/10.1136/bjsports-2018-099079>

Appendix A. Tables for Scoping Review

Table A.1. Year of study published

| <u>Year Published (#)</u> |
|----------------------------------|
| 2016 (2) |
| 2015 (6) |
| 2014 (3) |
| 2013 (6) |
| 2012 (5) |
| 2011 |
| 2010 (1) |
| 2009 (1) |
| 2008 |
| 2007 |
| 2006 |
| 2007 (1) |
| 2006 |
| 2005 (2) |
| 2004 |
| 2003 (1) |
| 2002 |
| 2001 |

Table A.2. Methodologies used

| <u>Methodologies Used (#)</u> |
|--------------------------------------|
| Phenomenology (4) |
| Grounded Theory (3) |
| Case study (8) |
| “Qualitative” (9) |
| Narrative analysis (1) |
| Exploratory Descriptive (2) |
| Ethnographic content analysis (1) |

Table A.3. Methods used

| <u>Methods Used (#)</u> |
|--------------------------------|
| Interviews 18 |
| Focus group 4 |
| Content Analysis 6 |

Table A.4. Participants/Population under study

| <u>Participants/Population under study (1 point if included in research) (textual analysis)</u> |
|--|
| Athletes (24) Elite/Professional (7), University/College (7), High School (4), Youth (6) |
| Parents (5), Clinicians (3), Coaches (2), Physiotherapists (2), Trainers (1), Equipment Personnel (1), Managers (1) |

Table A.5. Country study was done in

| <u>Country of Study</u> | <u>#</u> |
|--------------------------------|-----------------|
| USA | 12 |
| Canada | 9 |
| Australia | 2 |
| England | 2 |
| New Zealand | 2 |
| Norway | 1 |

Table A.6. Journal of Publication

| <u>Journal of Publication (#)</u> |
|--|
| Archives of Physical Medicine Rehabilitation (1) |
| BMC Psychiatry (1) |
| Brain Injury (1) |
| British Journal of Sports Medicine (3) |
| International Journal of Exercise Science (1) |
| International Sport Coaching Journal (1) |
| Journal of Adolescent Health (1) |
| Journal of Applied Sport Management (1) |
| Journal of Athletic Training (2) |
| Journal of Clinical Sport Psychology (1) |
| Journal of Exercise, Movement, and Sport (1) |
| Journal of Head Trauma (1) |
| Journal of Legal Aspects in Sport (1) |
| Journal of Nursing Scholarship (1) |
| Journal of Science & Medicine in Sport (1) |
| Journal of Sport and Exercise Psychology (1) |
| Journal of Sport & Social Issues (1) |
| Journal of Sports Medicine (1) |
| Men and Masculinities (JMM) (1) |
| Physical Culture and Sport Studies Research (1) |
| PLOS ONE (1) |
| Psychology of Sport and Exercise (1) |
| Sport Psychologist (1) |
| Sociology of Sport Journal (2) |

Table A.7. Terms used in the study

| <u>Term used in study (# of studies)</u> |
|--|
| <ul style="list-style-type: none"> • Concussion (24) • Brain Injury (1) • Moderate head injury (1) • mTBI (1) • TBI (1) |

**Western University Health Science Research Ethics Board
HSREB Delegated Initial Approval Notice**

Principal Investigator: Dr. Andrew Johnson
Department & Institution: Health Sciences\Health & Rehabilitation Sciences, Western University

Review Type: Delegated
HSREB File Number: 108955
Study Title: Factors that contribute to concussion reporting among CFL players

HSREB Initial Approval Date: April 13, 2017
HSREB Expiry Date: April 13, 2018

Documents Approved and/or Received for Information:

| Document Name | Comments | Version Date |
|---------------------------------|--|--------------|
| Western University Protocol | Received April 6, 2017 | |
| Recruitment Items | Email Script to Clubs - Received April 6, 2017 | |
| Recruitment Items | Telephone Script to Clubs - Received April 6, 2017 | |
| Recruitment Items | Recruitment Poster - Received April 6, 2017 | |
| Recruitment Items | Group Presentation Script - Received April 6, 2017 | |
| Letter of Information & Consent | | 2017/04/01 |
| Other | Verbal Consent Script - Received April 6, 2017 | |
| Instruments | Interview Guide - Received January 23, 2017 | |

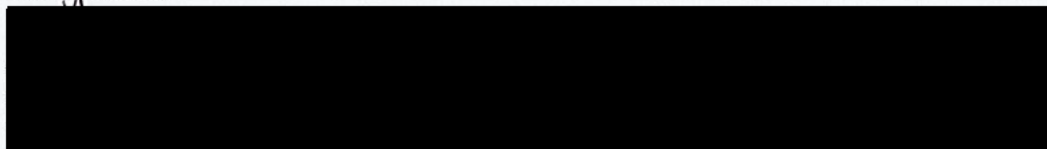
The Western University Health Science Research Ethics Board (HSREB) has reviewed and approved the above named study, as of the HSREB Initial Approval Date noted above.

HSREB approval for this study remains valid until the HSREB Expiry Date noted above, conditional to timely submission and acceptance of HSREB Continuing Ethics Review.

The Western University HSREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use Guideline for Good Clinical Practice Practices (ICH E6 R1), the Ontario Personal Health Information Protection Act (PHIPA, 2004), Part 4 of the Natural Health Product Regulations, Health Canada Medical Device Regulations and Part C, Division 5, of the Food and Drug Regulations of Health Canada.

Members of the HSREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The HSREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000940.



Appendix C: Interview Guide

Personal – Background Information

- Can you tell me a bit about your history with the sport?
- What is your favorite thing about football?
- When did you believe you could become a professional?
- What are the reasons you play football?
- What are some goals you have outside of football?

If still currently playing

- What will you do after your football career is over?
- Do you have any other career aspirations?
- If you were released or injured and could not play anymore, what would you do?

Concussion History (if applicable)

- Have you ever officially been diagnosed with a concussion?
 - Can you tell me what that was like for you?
 - Who did you tell about your concussion (official reporting/unofficial ie. family & friends)
 - Where you concerned about telling people about your concussion?
 - PROMPTS - If so, what were your concerns? Who were you concerned to tell? Why were you concerned?
 - What was the recovery process like for you?
 - What did you do to contribute to your recovery?

Concussion Knowledge

- What would you think or do if you had headache symptoms during a game?
- If you had a concussion, what would be your mindset about the injury? Would you be cautious? Confident you will recover? Anxious to get back to playing?
- What are the risks of playing with concussion symptoms?
- Do you take any steps to monitor or prevent concussion symptoms throughout the season?
- what would you say to a player who complained of headaches?
- If you received a hard hit to the body with your head not taking any of the impact, would you ever suspect a possible concussion?

Concussion Symptoms

- Can you recall any times where you had headache or concussion like symptoms during a practice or game?
 - Can you tell me what that was like for you?
 - Did you feel pressures to hide those symptoms? If so, can you tell me about them?
 - Did you ever feel pressured to return from injury quickly? If so what factors contributed to those pressures?

- Who did you (or would you) consider telling that you had these kinds of symptoms to?
- What would cause you to come forward about reporting concussion-like symptoms to a doctor, a coach or a manager?
- Were you hesitant to tell anyone about certain symptoms?
- Did anything surprise you about the concussion recovery process?
- What would you say to a teammate if you thought they had a concussion or any concussion symptoms?

Concussion Reporting Contributing Factors

- Have you ever felt pressure to hide concussion like symptoms?
 - If so, can you tell me about that?
- Do you think players/coaches/staff view players differently if they have, or have had a concussion?
- How does the current system encourage players to make a full recovery from concussion, or create barriers to recovery?
- How would you feel in the hands of your training staff were you to receive a concussion?
- Do you perceive concussion reporting as different at different points in a player's career? If so, how?
- In your first year would you have been more reluctant to come forward with a report of concussion like symptoms?
- Have you ever witnessed other players experiencing or dealing with concussion symptoms?
 - If so, what did you notice about their situation?
- What factors would you consider when returning to play following concussion like symptoms? Do you have any future worry about concussions? (concerns about future injury?)
- What would you advise your future child if they are going through a situation in which he had concussion like symptoms, or a concussion?
- If you had a concussion, were you able to be completely honest with everyone about what it is like to go through a concussion?
- If you had concussion like symptoms, were you able to be completely honest with everyone about what it is like to go through a concussion?
- If you had a concussion in the future, who would you talk to about it, and what would you do?

Daryl Stephenson

EDUCATION

| | |
|--|------|
| Health and Rehabilitation Sciences, The University of Western Ontario <i>Doctor of Philosophy</i> | 2018 |
| Exercise Physiology, University of Windsor <i>Master of Human Kinetics</i> | 2011 |
| Movement Science, University of Windsor <i>Bachelor of Human Kinetics</i> | 2008 |

EMPLOYMENT HISTORY

| | |
|---|--------------|
| Professional Health and Wellness Solutions <i>Ergonomics Consultant / Owner</i> | 2015-present |
| LeadErgonomics <i>Ergonomics Consultant</i> | 2010-present |
| School of Nursing, The University of Western Ontario <i>Research Assistant (primary work relating to burnout in the workplace)</i> | 2016-2018 |
| Health and Rehabilitation Sciences, The University of Western Ontario <i>Lecturer (Graduate Qualitative Research Methods)</i> | 2017 |
| <i>Teaching Assistant</i> | 2014-2017 |
| <ul style="list-style-type: none"> • <i>Intensives in Occupational Therapy</i> • <i>Graduate Qualitative Research Methods</i> • <i>Graduate Course Development</i> | |
| Sport Science Lab, London Ontario <i>Athletic Trainer</i> | 2011-2017 |
| Back N Motion Physiotherapy Clinic, London, Ontario <i>Kinesiologist</i> | 2013-2014 |
| Saskatchewan Roughriders <i>Football Player</i> | 2013 |

| | |
|--|-----------|
| Hamilton Tiger Cats <i>Football Player</i> <i>Public Speaker with BeFit Hamilton (Healthy Living and Nutrition)</i> | 2011-2013 |
| Winnipeg Blue Bombers <i>Football Player</i> | 2008-2010 |
| University of Windsor <i>Teaching Assistant</i> | 2008-2010 |
| <ul style="list-style-type: none"> • <i>Ergonomics</i> • <i>Sports Injuries and Rehabilitation</i> | |

PUBLICATIONS

Stephenson, D.W.H. (2017). Transitioning out of Professional Football. *Perseverance. CPA Sport and Exercise Psychology Section*. Issue 4. Pg. 8-9

CONFERENCE PRESENTATIONS

Stephenson, D. (2017). *Influencing factors in the process of reporting concussion symptoms in canadian football league players*. See the Line Concussion Symposium, London, Ontario, August.

Stephenson, D., **Johnson, A.M.**, Kinsella, E.A., & Holmes, J.D. (2017). *The power of rich description: A scoping review of sports-related concussion research employing qualitative methodological design*. Presented at the Annual Meeting of the Canadian Psychological Association. Toronto, Ontario, June.

Stephenson, D. (2015). *Transitioning from professional sports to academia: An autoethnography*. Presented at the 2015 Meeting of the International Society for the Study of Individual Differences. London, Ontario, July.