

**THE PARENTAL CONCUSSION EXPERIENCE: A PHENOMENOLOGICAL
EXPLORATION OF CONCUSSIONS FROM PARENTS' PERSPECTIVES**

by

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ABSTRACT

Sport related concussions (SRC) are a growing concern for sport administrators, health practitioners, parents and athletes. Parents have significant influence in their child's/children's leisure behaviour and are also responsible for the safety of their children. Parents must help their child understand risk and how to recognize danger as children and youth are at the greatest risk to encounter dire consequences. Using a phenomenological approach, the purpose of this study was to understand the lived experience of a parent who had a child (age 15-17) suffer a SRC. It further sought to understand how that experience influences decisions around their daughter's/son's sport participation. Purposive sampling was used to recruit seven parents and data were collected through semi-structured interviews. The findings suggested that parents were not satisfied with the information they were supplied by sport organizations and health professionals and felt they had to educate themselves. Parents also found that the relationship with educators, coaches, and health professionals played a significant role in the recovery process and either helped or hindered their experience. Furthermore, parents found themselves occupied with managing their child's reaction to the recovery process. Parents also struggled with their decisions around supporting future sport participation. While parents were fearful for their child's safety, they were also fearful of their child's reaction to and experience with being removed from sport. The study found that parents were conflicted with how to move forward despite supporting their child's return to sport.

DEDICATION

I dedicate this work to my wife Shannon and my three children Kailey, Rebecca, and Brayden. Thank you for moving across the country with me and helping me on this journey.

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LIST OF NOMENCLATURE OR ABBREVIATIONS

Chronic Traumatic Encephalopathy (CTE): a neurodegenerative disease that occurs most often in people who have a history of repeated concussions.

Concussion: a type of mild traumatic brain injury that is a result from alterations in consciousness (confusion, disorientation, loss of memory, brief loss of consciousness, etc.) following a forceful motion of the head.

Mild Traumatic Brain Injury (MTBI): a subset of traumatic brain injury that commonly refers to, but is not limited to, concussions.

Post-Concussion Syndrome (PCS): the presences of concussive symptoms beyond the normal 1-3-month recovery period of a mild traumatic brain injury.

Second Impact Syndrome (SIS): a circumstance in which cerebral hyperemia leading to diffuse cerebral swelling rapidly develops when a person suffers a second traumatic brain injury before symptoms related to an earlier TBI have fully resolved.

Sport Related Concussion (SRC): A concussion sustained as a result of participation in sport.

Sub-Concussive Impact (SCI): impacts to the head that are nonconcussive.

Traumatic Brain Injury (TBI): a term that encompasses three types of brain injury: mild traumatic brain injury, moderate traumatic brain injury, and severe traumatic brain injury.

CHAPTER ONE: INTRODUCTION

On May 8, 2013, Rowan Stringer, a 17-year-old female rugby player, suffered a concussion during a game that left her unconscious and she was immediately admitted to the hospital ("Rowan Stringer Ignored Concussion Symptoms Days Before Death," 2015). A week prior in a previous game, Rowan revealed to her parents that she had suffered a hit to the head after which she had taken pain relievers for a headache. Days later she suffered another hit to the head in yet another game, but this time she did not tell her parents ("Teen Rugby Player Dies After Suffering Head Injury in Game," 2013). Instead, Rowan decided to disclose to her friend, Michelle Hebert, that she was experiencing headaches and fatigue. Evidence from Rowan's text messages with Michelle indicate that Rowan suspected she may have suffered a concussion prior to May 8. In text messages between Rowan and Michelle, Rowan stated that "nothing would stop me, [from playing in the game on May 8] unless I'm dead" ("Emotional Testimony as Stringer Inquest Begins," 1:29). She further texted, "what's some brain damage gonna hurt" ("Rowan Stringer Ignored Concussion Symptom6s Days Before Death," 2015, para. 6). Michelle admitted to searching concussions on the internet with Rowan. Despite having searched for online resources, Rowan ultimately decided not to report her symptoms. Four days following the concussion on May 12 Rowan died in the hospital, after being removed from life support. A coroner's report revealed that Rowan Stringer died from Second Impact Syndrome (SIS). SIS occurs when a concussion is sustained before the recovery from a previous concussion is complete. This causes the brain to swell and, in some cases, leads to death (Goldberg & Robbins, 2016). Rowan underwent

surgery to reverse the swelling, but the operation was unsuccessful ("Rowan Stringer Ignored Concussion Symptoms Days Before Death," 2015).

Rowan had appeared to identify a concussion but chose not to report it out of a fervent desire to play in the next game. Rowan's parents were alerted to the fact that Rowan was experiencing a headache from an athletic impact, which is a symptom of a concussion, but were not aware of the severity of the event. As Rowan is not here to speak for herself, all the evidence that exists is the previously highlighted text messages between Rowan and her friend Michelle, the parents' statement of being aware of a previous hit, and Michelle's statement of being told about another hit to the head and the subsequent search of "concussion" on the internet. It is unfortunate that Rowan was not encouraged enough through her support system, her personal education, and her search results to report her suspected concussion as this may have saved her life. It is further unfortunate that Rowan's parents were not aware of the severity of Rowan's initial reports of a headache and may not have been able to recognize other symptoms Rowan may have displayed that warn of a potential concussion.

While this is a rare story of the fatal risks of concussions, it is not isolated. This Canadian example highlights the risk of suffering SIS, and in hindsight, it identified opportunities this specific athlete and her parents had to alter her unfortunate path. After Rowan's death, her parents set out to raise awareness of concussions, and began to challenge current policies and procedures, and support the creation of concussion legislation in Ontario. This legislation is now known as *Rowan's Law* (2018) and aims to create policies applicable to all amateur sports in Ontario. Key components include mandatory concussion education for athletes and parents, removal from play for athletes

with suspected concussion, mandatory medical approval for return to play, established codes of conduct, and collecting and sharing injury data (Rowan's Law Advisory Committee, 2017).

Rowan Stringer is not the only significant case among youth concussions that have led to new legislation. According to a report from the Centers for Disease Control (CDC) (n.d.), in the state of Washington, 13-year-old Zackery Lystedt suffered SIS in 2006. During a football game, Zackery struck his head on the ground after tackling another player. Video evidence shows Zackery clutching his helmet while lying on the ground and rocking back and forth (Washington State Association for Justice, 2014). He was sidelined for three plays and then returned to the game. Zackery's father recalled the remainder of the game as being very physical and hard-fought for Zackery. According to the CDC report, as the game finished, Zackery collapsed to the ground and was rushed to the hospital. SIS had caused his brain to swell and he underwent emergency surgery to reduce the swelling. Unlike Rowan's story, Zackery's surgery was successful in reducing the swelling of his brain. While his life was spared, his recovery was difficult, and his injuries were life altering. Zackery spent three months in a coma and suffered several strokes while in the hospital. Zackery had to relearn how to breathe, walk, talk, and function in almost every way and will never be able to function the way he once did. Like Rowan, Zackery reported (through body language) a symptom of concussion but it was not acknowledged by coaches, officials, or parents. Zackery's story has inspired the Zackery Lystedt Law (Washington State Legislature, 2009), which was passed in May 2009 for the state of Washington (CDC, n.d.), and this law is the first of its kind in the U.S. or Canada (Tator, 2016). Since this legislation was enacted all 50 states have

adopted legislation based on the Zackery Lystedt Law and the legislation has even influenced Football BC regulations in British Columbia ("Ontario's Proposed Concussion Law Needed in BC," 2015). This law requires that each year parents and youth read and sign a concussion information sheet before youth can participate in sport. In addition, like Rowan's Law, athletes with a suspected concussion are to be immediately removed from play or practice, and may not return until cleared by a licensed health care professional (Washington State Legislature, 2009, ss. 3-4). While these laws are not designed to prevent concussions, they are aimed at protecting athletes who suffer a concussion from preventable and potentially irreversible damage.

Sport-related concussions (SRC), a type of Traumatic Brain Injury (TBI), occur approximately 100,000 times per year in Canada, and in the United States they occur approximately 300,000 times per year (Billette & Janz, 2011; Thurman et al., 1998). The Government of Canada (2019) reports that brain injuries made up 80% of emergency department (ED) visits for youth 5-19 years-old out of all sports and recreation related injuries. It is also reported that hockey, ringette, and rugby are the most common sports for youth to experience brain injuries. Furthermore, The Canadian Institute for Health Information (2018) reports that ED visits for sport-related brain injuries have increased by 28% in Ontario and Alberta. The increase has been highest among youth aged 0-9 (50%). Out of all sport-related head injuries, 94% of them were concussion related. Unfortunately, it is very difficult to obtain accurate statistics around brain injuries, apart from ED visits, because it is well documented that concussions often go unreported and, therefore, undiagnosed. This suggests that the number of concussions are higher than statistics can account for (Bloodgood et al., 2013; Hachem et al., 2016).

Despite the clear and present risk that SRCs pose, and the frequency in which they occur, many youth athletes are not aware of the signs of a concussion and could return to play despite having suffered one (McAllister-Deitrick et al., 2014). A study by Gourley et al. (2010) found that only 66% of youth athletes and 68% of parents correctly identified that headaches and dizziness from a hit to the head should result in a player being removed from the game. This indicates that over 30% of players and parents feel they could return to play which dramatically increases the risk of SIS.

Purpose

SRCs have become a topic that has received a lot of attention within the context of sport (e.g., among athletes, sportscasters, sport organizations) and among researchers. The issue was most notably brought to light by the deaths of prominent National Football League (NFL) players and the discovery of the connection between Chronic Traumatic Encephalopathy (CTE), a degenerative disease found in athletes who have endured multiple concussions, and football (Omalu et al., 2005). This first major concussion case has spotlighted the problem and has influenced several studies and garnered significant media attention around the issue in both professional and amateur sports.

Existing literature in concussions has addressed topics such as concussion history (e.g., (Harrison, 2014; Makdissi et al., 2010; Martland, 1928), concussion effects (Abreu et al., 2016; Ford et al., 2014; Gavett et al., 2012; Hudson & Spradley, 2016), and concussion awareness and knowledge (Hull & Schmittl, 2015; Lebrun et al., 2013; Lincoln et al., 2011; Love & Solomon, 2015; McLellan & McKinlay, 2011). Little attention has been placed on the role of parents in the event of a SRC and the impact of their experience on their children's leisure behaviour. It is this gap that this research

sought to address. Therefore, the purpose of this study was to explore the lived experience of a SRC, through the perspective of a parent, and understand how that lived experience influences the decisions around their children's leisure behaviour in concussion-prone sports (CPS). More specifically, aspects of the lived experience that were investigated included the experience of a parent supporting a child through the following events: 1) receiving a concussion, 2) being diagnosed with a concussion, 3) recovering from a concussion, and 4) preparing to return to sport (or leave sport) after a concussion. Furthermore, information was sought related to parents' information sources regarding concussions; the experience of searching for information; the experience of interacting with coaches, health professionals, and school administrators and teachers throughout the concussion process; the parents' experience with managing the experience of a child; the decision about continuing to participate in sport (or discontinuing); and parents' feelings about that decision.

Significance

Atlantic Canada has experienced several recent prominent cases of SRC. In an unprecedented event, Petz (2017) reported that nine football players were removed from a single game due to suspected concussions. On October 13, 2017 in Moncton, New Brunswick (NB), a Moncton High School football team had to forfeit a game due to having nine of its players sidelined during the game for concussion symptoms. All nine went to the hospital and of those nine, four were diagnosed with concussions. This event has raised debate on concussion policies in high school football (Silcox, 2017). Leeder (2018) reported that on May 11, 2018, Brodie McCarthy of P.E.I. suffered a concussion during a rugby game after his head collided with another player. He was taken to the

hospital to undergo emergency surgery. The surgery was unsuccessful, and Brodie was put on life support without any indication of brain activity. On Sunday, May 13, Brodie was removed from life support and passed away. Brodie's mother called it a "freak accident" (Leeder, 2018, para. 16) that could not have been foreseen and indicated that Brodie had never before been diagnosed with a concussion. Scott-Wallace (2018) reported that, on June 2, 2018 in Perth-Andover, NB, Elliot Sprague was airlifted to the hospital after his head collided with another player. Elliot's father thought the measures put in place were unnecessary: "When we got the call saying Elliot was being airlifted to Saint John, I just thought everyone was on edge and being overly cautious after the incident on P.E.I. [referring to Brodie McCarthy]" (Scott-Wallace, 2018, l. 17). Elliott suffered a brain bleed as a result of his concussion and was placed in a medically induced coma to help him recover. Elliott returned home days later and is currently undergoing concussion recovery protocols. Given the tragic case of Brodie McCarthy and the alarming cases of the Moncton High School football team and Elliot Sprague, Atlantic Canada is an ideal setting to focus this study.

The prevalence of concussions, and the fear instilled in parents and athletes, threatens the future of sports. Scientific advancements around concussion prevention, detection, and management are emerging, but finding solutions cannot be left to technology alone. CPS such as football, hockey, ringette, rugby, and soccer must make immediate efforts to ensuring the safety of athletes and preserve the sports' long term existence. To effectively do this, it would be valuable to understand the thought process of parents, so that education can be targeted, and strategies can be formed and implemented to counter and address fears and concerns of sport stakeholders and the

public. Results of this study could outline the factors leading to continued participation or discontinuation of participation. Furthermore, outcomes from this research could inform concussion education and improve sport marketing as fears and concerns (identified through results) are addressed and strategies to alleviate those fears and concerns are implemented.

CHAPTER TWO: LITERATURE REVIEW

The Sports Umbrella of Traumatic Brain Injuries

In sports, the terms concussion, second impact syndrome (SIS), chronic traumatic encephalopathy (CTE), sub-concussive impact (SCI), and post-concussion syndrome (PCS) are all subsets of the traumatic brain injury (TBI) umbrella. O'Phelan (2016) identifies that TBIs have three levels of clinical classification: Mild TBI (MTBI), Moderate TBI, and Severe TBI. They also originate from three classes of mechanism: a closed or blunt force injury, a blast injury, or a penetrating injury. Sports-related TBIs originate from closed or blunt force events and fall within the MTBI classification. According to Crandall (2016),

TBI occurs when there is a blow or jolt to the head due to rapid acceleration or deceleration or a direct impact... brain function is temporarily, or permanently impaired and structural damage may or may not be detectable. Not all blows, bumps, or injuries cause TBI, and the severity of the injury may vary widely.

(p. 25)

Concussion

Concussion, sport-related concussion (SRC), traumatic brain injury (TBI), mild brain injury, head injury, mild head injury, and mild traumatic brain injury (MTBI) are all terms often used interchangeably to describe alterations in consciousness (confusion, disorientation, loss of memory, brief loss of consciousness, etc.) following a forceful motion of the head (Echemendia & Julian, 2001; McCrory et al., 2017; Yeates & Kirkwood, 2012). For the purpose of this research, the study of concussions will be limited to sport-related concussions only, the term concussion will be utilized to identify

a single event, and MTBI will be used to identify the previously discussed umbrella of head injuries that occur from sport, which include concussion, SIS, CTE, SCI, and PCS.

Historically concussions have been accepted as clinically benign and therefore have received little academic attention. Only recently has research regarding concussions become a popular topic. Much of this popularity is shared between technological advancement, specifically around brain imagery (Yeates & Kirkwood, 2012), and notable professional athlete diagnosis that in many cases have ended careers and highlighted the serious consequences of concussions (Echemendia & Julian, 2001).

Commonly in sport, athletes while self-reporting will define concussions in colloquial terms such as having their “bell rung,” getting “dinged,” being “dazed,” feeling “woozy,” or being “stunned” (Coghlin et al., 2009; Echemendia & Julian, 2001; Gourley et al., 2010; Makdissi et al., 2010; Shurley et al., 2012; Weber & Edwards, 2010). This nomenclature undermines the severity of the event of a concussion and normalizes the discomfort, which overlooks the need for medical assessment; thus, a more appropriate definition is called for. During the International Symposia on Concussing in Sport (McCrory et al., 2009, p. 341), a panel of concussion experts had consensus on the following definition of concussion.

Concussion is defined as a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces. Several common features that incorporate clinical, pathologic and biomechanical injury constructs that may be utilized in defining the nature of a concussive head injury include:

1. Concussion 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.

2. Concussion typically results in the rapid onset of short-lived impairment of neurologic function that resolves spontaneously.
3. Concussion may result in neuropathological changes but the acute clinical symptoms largely reflect a functional disturbance rather than a structural injury.
4. Concussion results in a graded set of clinical symptoms that may or may not involve loss of consciousness. Resolution of the clinical and cognitive symptoms typically follows a sequential course however it is important to note that in a small percentage of cases however, post-concussive symptoms may be prolonged.
5. No abnormality on standard structural neuroimaging studies is seen in concussion.

Similarly, the American Medical Society for Sports Medicine defines concussion as “a traumatically induced transient disturbance of brain function and involves a complex pathophysiological process. Concussion is a subset of mild traumatic brain injury (MTBI) which is generally self-limited and at the less-severe end of the brain injury spectrum” (Harmon et al., 2013, p. 15). Despite being on the less-severe end of brain injuries it is still considered a “traumatic” injury. A concussion refers to a single event, whereas terms such as SIS, CTE, and SCI refer to multiple concussive events that pose significantly more severe risks.

Second Impact Syndrome (SIS)

SIS, as discussed in the introduction, is a rare life-threatening injury that occurs when an individual suffers a second concussion prior to recovering from a previous

concussion. SIS is defined as “a circumstance in which cerebral hyperemia leading to diffuse cerebral swelling rapidly develops when a person suffers a second traumatic brain injury before symptoms related to an earlier TBI have fully resolved” (Goldberg & Robbins, 2016, p. 81). This definition indicates that the impact caused by a second concussion causes the brain to swell rapidly, which in the case of Rowan Stringer and Zackery Lystedt resulted in fatal or life-altering injuries. SIS almost always occurs in children and youth and it typically occurs within two weeks of the first concussion and its severity is disproportionately larger than the effects of the first due to unresolved symptoms (Goldberg & Robbins, 2016). SIS is best avoided by proper diagnosis of a prior concussion and subsequent adherence to concussion management strategies discussed later in this chapter. The incidence of SIS occurs because a previous concussion was either not diagnosed or misdiagnosed or concussion management protocol was not properly followed or ignored.

Chronic Traumatic Encephalopathy (CTE)

CTE is a neurodegenerative disease that occurs most often in people who have a history of repeated concussions. Brain trauma is a necessary factor for the development of CTE; however, not all individuals who are exposed to repeated concussions will develop CTE, which makes it difficult to identify the minimum or average frequency of concussive events that result in the development of CTE (Montenigro et al., 2016).

While CTE is not a new disease, it has been recently linked to athletes in sports other than boxing. Boxing was the first sport to recognize the long-term effects of multiple concussions. In 1928, Dr. Martland recognized the condition and referred to fighters who suffered from this as “punch drunk” (p. 1103). Punch-drunk boxers were

sluggish and unsteady. Their condition was typically most visible when they returned to their corner after each round. In more severe cases, boxers would portray mental confusion, they would stagger, and some even had a tilt in their head. Gradually, this condition would lead to dragging feet, characteristics of parkinsonian syndrome, backward swaying of the body, tremors, vertigo, deafness, and finally some suffered mental deterioration so severe that it led to commitment to an asylum. Dr. Martland believed that although medical literature had not described or recognized “punch drunk,” it was “a very definite brain injury due to single or repeated blows on the head or jaw which cause multiple concussion hemorrhages in the deeper portion of the cerebrum” (p. 1103). At the time, Dr. Martland admitted there was little evidence to support his theory, but he was convinced that his studies in post-traumatic encephalitis led a logical path to his theory.

In 1937, Millsbaugh (as cited by Tartaglia et al., 2014) used the more medically appropriate term “dementia pugulistica” to describe Martland’s “punch drunk” (p. 2). Then in 1966, Miller introduced the term *chronic traumatic encephalopathy*, better known now as CTE, to describe “punch drunk” (p. 261). Since 1966, CTE has been defined as

a neurodegenerative disease associated with repetitive brain trauma (multiple concussions) and characterized pathologically by the accumulation of tau protein in specific areas of the brain. CTE results in executive dysfunction, memory impairment, depression and poor impulse control. CTE is a diagnosis made only after death. (Harmon et al., 2013, p. 25)

The next breakthrough in research would not occur until 2005 when Dr. Bennet

Omalu found the first documented case of CTE in a football player (Omalu et al., 2005). This football player was retired Pittsburgh Steeler Mike Webster. Prior to this finding, CTE was only associated with boxers (Shurley et al., 2012). CTE has now been linked to other sports that are associated with repetitive concussions, such as professional wrestling, hockey, soccer, and other activities (Gavett et al., 2012).

CTE has become increasingly connected to the term concussion despite their differences. A single event causes a concussion whereas CTE refers to multiple concussive events over an extended (yet undetermined) period. The connection between concussions and CTE is still in the early stages of research. A single concussion may not be responsible for the development of CTE, but it is unknown the number and severity of concussions that must occur to develop the disease; however, CTE is mostly found in brains that have a history of repeated concussions (T. D. Stein, Alvarez, & McKee, 2015). Only people who suffer repetitive head trauma are at risk of developing CTE: this includes athletes, victims of abuse, and war veterans (Tartaglia et al., 2014).

According to T. D. Stein et al. (2015), CTE has four pathological stages. Stage I occurs when tau protein is limited to the frontal lobe. At Stage II, tau is found in both the frontal lobe and parietal lobe. In Stage III, the temporal cortex becomes infected, and in Stage IV all cortical lobes demonstrate the existence of tau protein. Along with the acceleration of tau protein comes the acceleration of clinical symptoms for the individual. As discovered in a study through Boston University, the lead CTE research institution, and reported by McKee et al. (2013), the symptoms of Stage I include short-term memory difficulties, aggressive tendencies, depression, dysfunction, and explosivity. In Stage II, symptoms, in addition to those found in Stage I, include signs of motor neuron disease,

mood liability, loss of attention and concentration, short-term memory loss, headache, executive dysfunction, impulsivity, suicidality, and language difficulties. Stage III presents additional symptoms of memory loss, mood swings, vision difficulties, aggression, apathy, cognitive impairment, and the potential onset of motor neuron disease. Stage IV introduces severe memory loss with dementia, significant loss of attention and concentration, paranoia, gait, dysarthria, and parkinsonism. Among the 51 subjects studied (all with CTE), seven died of suicide and six died of alcohol or drug overdose. The most common causes of death was respiratory failure, cardiac disease, suicide, overdose, and failure to thrive with dementia and malignancy.

In a study of 202 deceased football players by Mez et al., (2017), 177 players were diagnosed with either mild (Stages I and II) or severe (Stages III and IV) CTE. The median age for mild CTE was 44 years old and the median age for severe CTE was 71 years old. The most common cause of death for those with mild CTE was suicide, and for those with severe CTE the most common causes of death were linked to parkinsonian or dementia-related causes. The study was separated into five levels of play to determine the distribution of the disease and players were assigned to the category that represented their highest level of play. All three former high school players were diagnosed with mild CTE. While each of the other categories of player discovered mild CTE, the majority diagnosis for each was severe CTE. Severe CTE was found in 27 former college players (56%), four former semi-professional players (56%), six former Canadian Football League (CFL) players (86%), and 95 former NFL players (86%). The overall results of any form of CTE reveal that 0 of 2 pre-high school players were diagnosed, 3 of 14 high school players (21%), 48 of 53 college players (91%), 9 of 14 semi-professional players

(64%), 7 of 8 CFL players (88%), and 110 of 111 NFL players (99%). These staggering results show a clear rate of increased frequency as the level of play increases, which suggests that the longer one plays and the higher the level of play, the higher the likelihood of developing CTE. While it cannot be determined due to a small sample size of high school players, the suggestion that at least 21% of players who play high school football will develop CTE is alarming, and that number will grow astronomically as players go through the career stream of sports.

In 2012, Kounang reported for CNN on the youngest player to ever be diagnosed with CTE. Nathan Stiles, a 17-year-old, died from SIS after a high school football game in 2010. Boston University contacted the Stiles family after hearing of Nathan's death and requested Nathan's brain for study. Dr. Ann McKee, the leading neuropathologist of CTE, examined Nathan's brain and did not find what she expected. "You expect a pristine brain. I saw a brain that was riddled with tau proteins. I was stunned at how similar that brain was to the boxers who lived into their 70s" (Kounang, 2012, para. 21). Nathan Stiles is not the only youth to be diagnosed with CTE, as earlier that year Boston University diagnosed an 18 year-old John Doe with the very beginning evidence of CTE (Boston University CTE Center, n.d.). These cases refute the belief that CTE only affects adults with significant exposure to MTBIs over a long period of time. CTE is a rare condition but is also a legitimate concern for youth in concussion-prone sports (CPS).

Sub-Concussive Impact (SCI)

The most common type of MTBI in sports are sub-concussive impacts (SCI). These are impacts to the head that are nonconcussive. In American football, an offensive lineman can experience over 1000 of these sub-concussive impacts of the course of a

season (T. D. Stein et al., 2015). A 2014 study reported by Singh et al. examined 75 college students, 50 of which were NCAA Division 1 football athletes, where 25 had a history of concussions and another 25 did not. The remaining 25 students (control group) were not football athletes. The results of the study showed that football players, regardless of concussion history, had smaller hippocampus volumes and slower reaction times in relation to the control group regardless of concussion history. The differences in reaction times were related to the number of years played, rather than the history of concussions (Singh et al., 2014; T. D. Stein et al., 2015). These findings suggest that all football players suffer MTBI regardless of concussion history, likely in the form of sub-concussive impact rather than undiagnosed concussions alone, and the effects of these MTBIs include physical alterations to the brain and slower reaction times.

T. D. Stein et al. (2015) found that prolonged exposure to SCI can lead to the development of CTE: “In 16 % of subjects diagnosed postmortem with CTE, next-of-kin reported no concussions, suggesting that sub-concussive head injury can be sufficient for development of disease” (p. 4). Furthermore, in 92 cases of CTE, the stage of CTE was predicted by the number of years of play, and the age of the victim rather than concussion history: “This suggests that a prolonged period of sub-concussive head injury drives the progressive development of CTE tau pathology. It further suggests that the recognition of concussion, while important, is not sufficient for properly identifying individuals at risk for CTE” (p. 5).

Children under the age of 12 are especially at risk for long-term damage due to participation in CPSs. Stamm et al. (2015) found that former NFL athletes whose age of first exposure (AFE) to repeated head impacts (RHI) was under the age of 12 performed

“significantly worse on measures of executive function, memory, and premorbid estimated verbal IQ (eVIQ) than those who started playing at age 12 or older” (p. 1115). An important note for this study is that out of the participants studied, those who belonged in the AFE <12 group played an average of two fewer years in the NFL than those in the AFE >12 group. This indicates an increased risk of long term effects related specifically to AFE rather than number of years playing. This does not discount the findings of T. D. Stein et al. (2015), but rather it highlights the significance of early exposure to RHI. Dr. Anne McKee would argue that participation in CPS should be avoided not only before the age of 12, but rather 14. When asked if kids younger than 14 are at a higher risk of brain injury than adults, in an interview with Fred Bowen (2016) of *The Washington Post*, McKee replied,

That’s an important question. Kids’ brains are developing. Their heads are a larger part of their body, and their necks are not as strong as adults’ necks. So kids may be at a greater risk of head and brain injuries than adults. (l. 29-31)

She was then asked if those kids should play football: “No. I would advise kids not to play any sports, such as tackle football, where they are exposed to repeated blows to the head” (l. 33-34). These comments are supported by research out of the Wake Forest School of Medicine, reported by Bahrami et al. (2016), who studied youth athletes aged 8-13 and found, through brain imaging scans, that even a single season of play can cause negative changes in the brain, regardless of the presence of a concussion. From the evidence highlighted here, it is reasonable to suggest that sub-concussive impacts are a significant danger to youth in CPS, and youth under the age of 14 should be especially cautious, or even refrain from participation.

Post-Concussion Syndrome (PCS)

The diagnosis of PCS is relatively uncommon. It is estimated that around 10-20% of people who have suffered a concussion will be diagnosed with PCS (Ford et al., 2014). PCS refers to the presence of concussive symptoms beyond the normal 1-3-month recovery period of an MTBI. Individuals with PCS may experience headaches, dizziness, irritability, anxiety, depression, difficulty concentrating, and difficulties with memory (Broshek et al., 2015; Clarke et al., 2012). While PCS symptoms are commonly found in athletes who have been diagnosed with a concussion, it has also been found in other populations where a concussion has not been diagnosed (Broshek et al., 2015).

Parental Influence on Children's Leisure Behaviour

The parental influence on children's leisure behaviour is significant (Hoefer et al., 2001). The activities children engage in have the significant support system of parents helping to facilitate leisure experiences (Raymore, 2002). Without this support, it would be extremely difficult for children to participate in many organized leisure activities such as sport (Shannon, 2014a). This section briefly discusses the leisure behaviour model, highlighting how children choose their activities and the influence parents have on those choices. It also discusses leisure constraint theory and how parents act as either a facilitator (supporting leisure) or a constraint (discouraging leisure) in children's lives. As one of the aims of this study was to determine *how the experience of parenting a child through a concussion has influenced parental attitudes and/or behaviours in supporting leisure*, it is beneficial to highlight how parents can facilitate or constrain their children's leisure pursuits.

Leisure Behaviour

According to Robertson (2007), leisure behaviour refers to the leisure activities one engages in that serve to meet a need, such as need for physical activity, need to be challenged, need to have fun, and need to be social. These activities make up one's leisure repertoire (intended leisure), which is influenced by six conditions: our values, attitudes, knowledge, interests, experience, and skill. Individuals will attempt to engage in an activity if it meets the aforementioned conditions after they negotiate the internal (motivation, confidence, etc.) or external (time, money, transportation, etc.) intervening constraints. The concept of leisure behaviour is not just a process with a beginning and an end, but it is also a cycle that requires continued evaluation. Once someone is in an activity, she/he must continue to choose to stay within that activity based on the six conditions and the navigation of internal and external constraints. All leisure activity is subject to this process regardless of one's awareness of the process. With the exception for the need to have fun, children may not be cognizant of what needs they have and that many of those needs could be served through leisure engagement. Furthermore, children are raised by their parents and guardians, and through the adult-child relationship, a child begins to form their values, attitudes, knowledge, interests, experiences, and skills (Wright et al., 2010). This formation happens not only through self-discovery, but also through parental influence, family influence (siblings, extended family), and eventually peer influence.

Parents help their children navigate leisure behaviour and share their values, attitudes, knowledge, interests, experiences, and skills. This often leads children to engage in activities with which their parents are already very familiar. Sofranko and

Nolan (1972) found that the majority of adults who participate in hunting and fishing did so as children and were introduced to the activity by their parents. Baxter-Jones and Maffulli (2003), who studied the parental influence on elite athletes, found that parents' beliefs play a substantial role in their children's physical activity. The majority of the parents studied had children who played the same sports the parents had played when they were young. Shannon (2003), who studied the work, family, and leisure role relationship between mothers and daughters, found that only daughters with mothers who participated in leisure regularly included leisure in their own lives. Conversely, daughters who witnessed their mothers sacrifice personal leisure to satisfy family needs did not value leisure for themselves. These examples provide some insight into how parents may influence their children to choose the activities they engage in and they indicate the potential influence parents have on the continued navigation of leisure behaviour.

Leisure Constraint Theory

Once individuals have chosen an activity to engage in, they must navigate the internal and external constraints. According to Crawford et al. (2009), constraint theory labels three types of constraints: *structural*, an intervening barrier between leisure preference and participation (e.g., cost, weather, opportunity, etc.); *intrapersonal*, an individual psychological barrier that influences preferences (e.g., stress, anxiety, self-esteem etc.); and *interpersonal*, an interpersonal barrier that is influenced by the relationships between individuals (e.g., lacking a partner to recreate with, parents disapproving). Each of these types of constraints can be influenced by the parents, whether it is through giving a ride, providing motivation, or introducing children to one another. Children become reliant on parents to intervene on their behalf and it is this

relationship that makes interpersonal constraints the most significant type of constraint for children (e.g., pay for, transport to, etc.). Should parents not support specific opportunities, such as concussion-prone sports (CPS), it would be very difficult for a child to engage in that activity. Should a parent support their child in CPS, then all or most of the arrangements are handled on the child's behalf. Raymore (2002) refers to this positive influence as facilitation and suggests that any intrapersonal, interpersonal, or structural aspect that leads to engaging in leisure (rather than constraining) are considered facilitators. Parents can act as both an interpersonal leisure constraint and an interpersonal leisure facilitator. Understanding the parental influence prior to injury, during recovery, and following recovery from a sport-related concussion (SRC) would provide insight into the impact of the parental SRC experience.

Parents as Facilitators and Constraints

Facilitators are any factors that support leisure engagement (Raymore, 2002). Structural facilitators include, for example, accessible facilities, expendable income, and gender-neutral spaces. Intrapersonal facilitators include outgoing personality, positive past experiences, and self-efficacy. Interpersonal facilitators include supporting peers, encouraging authority figures, and loving parents. As parents are the most significant influence on a children's leisure behaviour, interpersonal facilitators become the most significant type of facilitator. Parents "enable or promote the formation of leisure preferences and encourage or enhance participation" (Raymore, 2002, p. 39). This is accomplished through offering both tangible and intangible support. A meta-analysis on parental support for physical activity by Beets et al. (2010) identifies four dimensions of support: instrumental (provision of tangible aid and services), conditional (direct

involvement or physical presence of parent), motivational (verbal and nonverbal interaction regarding activity), and informational (advice, suggestions, and information on activities). Beets et al. found that *transportation and fee payment and equipment purchases* were instrumental forms of tangible support, and *parents as participants* and *parents as spectators* were conditional forms of tangible support. Furthermore, *encouragement* was identified as a motivational form of intangible support. Each of these support forms plays a role in how a child engages in leisure.

Transportation for leisure activities is important as most children are unable to transport themselves independently. According to Beets et al. (2010), “one of the major barriers for children to participate in activity-related behaviours is the ability to access places (e.g., parks/playgrounds, sport practices/meets) where the child can be active” (p. 629). Furthermore, “parental provision of transportation is a key component to youth accessing these places and is linked to greater levels of activity” (p. 629). Transportation is reported to be one of the most common forms of parental support, and children desire to have increased access to this type of support (Wright et al., 2010). Access to transportation is directly related to increased participation for youth in organized physical activity (Hoefer et al., 2001). Without transportation leisure opportunities would become very limited.

Fee payment and equipment purchases are also directly related to increased participation (Beets et al., 2010) and the cost associated with sport participation “run into the thousands of dollars a year and has a significant impact on the family life” (Côté, 1999, p. 406). Gould et al. (2006) found financial support to be the most recognized positive parental behaviour, and coaches recognized financial support as having a high

impact on players' experience. The absence of this support would make it very difficult for children to independently finance their own registration, travel, and equipment fees, making this an instrumental form of parental support.

Parents participating in sport with their children is well documented to show an improvement in physical activity (Beets et al., 2010; Heitzler et al., 2006). Furthermore, parents consider co-participation as an important tool to increasing physical activity in their children (Shannon, 2014b). Even when parents spectate games and practices they provide visible support to children and have a positive effect on sport participation (Heitzler et al., 2006). Beyond the visible support of co-participation and spectating, the intangible support of encouragement was found as a precursor to activity involvement and reinforces positive support during activity (Beets et al., 2010). Parental support and encouragement are key to shaping children's activity levels (Heitzler et al., 2006), and is one of the most sought after types of support by youth (Wright et al., 2010).

As indicated, parents are strong facilitators to leisure activity, but parents can also be a constraint. Hultsman (1993) found that the most common reason for children to not join an activity of interest is parental influence that discourages participation. In a study of interpersonal barriers, Hultsman found 76.1% of respondents indicated parents as a main influence for not joining an activity. The most common reasons were that activities cost too much, parents won't allow it, lack of transportation, age, and not knowing how to register. Except for age, each of these reasons is influenced by parents as they can fund activities, allow participation, provide transportation, and help register their child. Parents were also found to be the second most influential factor when dropping out of an activity.

Safety concerns are another reason for parents resisting leisure support. Boufous et al. (2004) found that over a quarter of parents in their study discouraged or prevented their children from participating in sport due to safety or injury concerns. “Some participants felt that the potential for injury or the seriousness of likely injury associated with some sport was too great and indicated that they had disallowed, or would not allow, their child to participate in playing those sports” (p. 484). The most common sports discouraged by parents in the study were rugby league and rugby union. Parents are also known to restrict their children from unstructured play due to safety concerns. “With regard to her child wanting to ride her bike, one parent commented, ‘I’m like, ah, can’t you just stay home and do something? Because it’s the worry. You know, like is she riding safe? Is she looking before she crosses?’” (Bassett-Gunter et al., 2017, p. 286). While parental safety concerns may affect parents’ supporting behaviours, they may not have an impact on children’s sporting interests. Romaine et al. (2016) hoped to find a correlation between parental safety concerns and a child’s achievement outcomes (motivation and enjoyment) of sport. While a connection was found between a child’s safety concerns and child’s enjoyment (not motivation), there was no direct, measurable correlation between parental safety concerns and child achievement outcomes. This suggests that parental safety concerns may not have an impact on the value children put on the specific activity.

Examining the facilitating behaviours of parents from Beets et al. (2010) and considering them as constraints (not providing transportation, not paying for fees, not participating with, not spectating, and providing negative emotional feedback), it is clear that parents hold as much influence to restrict their children’s leisure pursuits as they do

to support them. Having such a considerable influence places the parent in a powerful position regarding their children's leisure behaviour. Should parents choose not to support, or no longer support, an activity such as a CPS, there may be very little their children can do to overcome that barrier. Equally, should parents support their children through the experience of a concussion and return to CPS, then the barriers to participation are significantly decreased. This study aimed to understand how the experience of supporting a child through a concussion has influenced the attitudes and behaviours that impact parental support in CPSs.

Parents' Knowledge and Awareness of Traumatic Brain Injuries

A study of awareness and perceptions of traumatic brain injury among athletes and parents reported by Bloodgood et al. (2013) revealed that 84% of parents agreed or strongly agreed that concussions were a critical issue. Of those parents 68% were mothers and 34% were fathers. This study aimed not only to study the experience of a sport related concussion (SRC) from the parental perspective, but also to understand how their knowledge and awareness of MTBIs impact that experience. To determine if the level of knowledge and awareness of the parents is low, average, or high, it is important to outline what has been studied so far on the topic. Knowledge and awareness from the athlete's perspective have garnered more academic attention than that of the parents (Delaney et al., 2015; McAllister-Deitrick et al., 2014; C. J. Stein et al., 2015), but given the role that parents play in their children's sport participation, more research is needed. The following section examines concussion detection, recovery, and education from the parents' perspective.

Detection

To best detect a concussion, athletes, parents, and coaches all need to be educated. An important aspect of detection is admission. In many cases of MTBI, athletes must report symptoms to coaches, doctors, parents, and others to be treated for a concussion. While it is known that athletes commonly hide concussion symptoms due to fear (Echlin, 2010; Mrazik et al., 2014; C. J. Stein et al., 2015), it is less reported that some parents reinforce that fear. Echlin (2010) recorded observations from the Hockey Concussion Education Project (HCEP) and included them in an editorial that highlights the sociological context of hockey. Echlin observed that many parents did not prioritize their children's health due to an overinvestment in child success (e.g., time, money). When speaking about his concussed son, one parent said they understood when other parents wanted to ignore the injury because "parents had a significant amount of time and money invested in the child, and if there was nothing visibly wrong, he [the child] should be on the ice with his teammates" (p. 3). In some cases of suspected or diagnosed concussions, parents deceived administrators, influenced children through guilt, disagreed with clinicians, and declined treatment. Conversely, one observation saw a parent intervene when their child declined medical evaluation. The athlete's coaches supported the declination and the parent interceded and convinced the child to accept evaluation before going back in the game. These situations exemplify the vital role of parents in the admission of symptoms to detect concussions, and the last example illustrates that not all coaches prioritize a child's health.

To assist a child in the admission and recognition phase of concussion detection, it is essential for parents to know the symptoms of a concussion. The Pocket Concussion

Recognition Tool (PCRT) (Pocket CRT, 2013) developed from McCrory et al. (2013), is distributed by many health information organizations such as Parachute Canada, Coaching Association of Canada, and NB Trauma to inform parents, coaches, and athletes how to identify a concussion in children, youth, and adults. Table 1 refers to the 24 symptoms listed by the PCRT that may suggest a concussion.

Table 1: Symptoms of a Concussion

1. Loss of consciousness	2. Feeling slowed down	3. Sadness
4. Headache	5. Drowsiness	6. Amnesia
7. Seizure or convulsion	8. Pressure in head:	9. Fatigue or low energy
10. Dizziness	11. More emotional	12. Feeling like “in a fog”
13. Balance problems	14. Blurred vision	15. Nervous or anxious
16. Confusion	17. Irritability	18. Neck Pain
19. Nausea or vomiting	20. Sensitivity to light	21. “Don’t feel right”
22. Sensitivity to noise	23. Difficulty remembering	24. Difficulty concentrating

Another tool, the Sport Concussion Recognition Tool 5 (SCAT5) (Echemendia et al., 2017), is used by medical professionals to assist in the diagnosis of a concussion. SCAT5 lists 22 symptoms which exclude amnesia, seizure or convulsion, and loss of consciousness from the PCRT, but adds trouble falling asleep. Combining these tools for the resource of symptom identification increases the symptom list from 24 to 25 with the addition of trouble falling asleep. These tools will be helpful in comparing the findings of academic scholars who have studied the recognition of symptoms of a SRC with the information parents present.

Sullivan et al. (2009) surveyed parents of rugby players regarding their ability to recognize concussions. They found that 83% of parents believed they were able to recognize a concussion. The 10 most frequent concussion symptoms identified by the 200 respondents were headaches (76), dizziness (43), disorientation (32), memory loss (30), vomiting (28), nausea (27), dilated pupils (26), blurred vision (19), drowsiness (18), and knocked out or loss of consciousness (15). Despite “knocked out” being listed as the 10th most commonly recognized symptom, 95% of parents agreed that an athlete did not need to lose consciousness to suffer a concussion. Of the 10 symptoms listed, nine are directly reflected in either the PCRT or the SCAT5. Sullivan et al. concluded that the participants “presented a good lay knowledge of a concussive injury” (p. 229).

Coghlin et al. (2009) surveyed 117 parents of minor hockey league players and found that generally parents were successful in identifying concussion symptoms. Specifically, mothers were more knowledgeable than fathers. All parents correctly identified headaches and difficulty with memory as concussion symptoms; however, parents were not as successful in identifying the false symptoms of a concussion. Hearing voices and a lowered pulse rate were incorrectly identified by 47.4% of respondents as a symptom of concussion. Respondents (43.9%) also incorrectly identified euphoria and inability to swallow as a symptom of concussion. The three most common symptoms of a concussion not recognized by respondents were difficulty falling asleep (54.4%), inability to describe time and place (28.9%), and increased emotion and irritability (23.7%). The study concludes that while concussion education has been successful at increasing the awareness of parents to signs and symptoms of concussion, there is still a gap regarding

incorrect identification and lack of recognition of sleep difficulty, disorientation, and irritability as symptoms of concussion.

Gourley et al. (2010) studied the concussion awareness of youth athletes and their parents. They found no significant difference between parents' and youth athletes' ability to recognize concussion symptoms. Seventy-five percent of youth athletes and more than 80% of parents correctly identified confusion, headache, loss of memory, loss of consciousness, and dizziness as symptoms of concussion. The study also found that parents with first aid or general medical training were better at identifying concussion symptoms than parents without previous training.

These studies indicate that parents have a good foundational knowledge of concussion symptoms. They also indicate that there are gaps in concussion education as parents were easily misguided with decoy symptoms. Over half of parents were also unaware of sleep difficulty as a symptom. These gaps in symptom identification, and false positive findings, can make the difference between treating an athlete for concussion and ignoring an athlete with a concussion, which could result in grave outcomes.

Recovery

During the recovery phase, the goal, beyond achieving good health, is to get to a point where an athlete is safe to return to competition. Today, this recovery process is outlined in what is called the "return-to-play" guidelines or protocols. In the 1980s and 1990s, return-to-play guidelines were not representative of the time and process it took to heal from a head injury due to an absence of concussion research. These guidelines were opinion-based rather than formed from empirical findings (Lovell et al., 2018). Today,

these guidelines are clearer and based on empirical evidence to provide instructions to coaches, players, parents, and medical professionals. *The Consensus Statement on Concussion in Sport* is the guiding source of return-to-play guidelines for Parachute Canada and many other organizations (McCrorry et al., 2017).

Part of the return-to-play guidelines includes an examination of an athlete's reported and observed symptoms. This requires an element of athlete and parental involvement to inform clinicians about the athlete's progress. According to Sandel et al. (2015), clinicians often take the parental perspective into consideration with regards to MTBI recovery because parents may offer an additional source of information, as they witness the performance of an athlete in both home and school environments. However, Sandel et al. argue that parents are not a good source of additional information because parental perceptions of an athlete's recovery are strongly influenced by the athlete's reported symptoms instead of objective measurements. Athletes are known to underreport symptoms of MTBI due to factors related to fear, lack of awareness, lack of understanding, and culture (Delaney et al., 2015; McAllister-Deitrick et al., 2014; Mrazik et al., 2014; Pfister et al., 2015) and therefore clinicians should be cautious in using athletes as a reliable source of recovery status. If parents' perceptions of athletic recovery are significantly influenced by the athlete's report of symptoms, then a parent cannot offer any additional information to clinicians.

While athletes are known to misreport progress in an effort to return to play sooner, the problem is not isolated in athlete behaviour. In some cases this behaviour is mirrored by parental influence. McGuckin et al. (2016) relate a story where parents played a pivotal role in the return-to-play process. One athlete discussed the pressure her

father/coach put on her to return to play despite still experiencing headaches. This father/coach downplayed the serious nature of concussions saying, “it’s not a big deal” (p. 434). The mother wanted her to quit and the father wanted her to play, sending the athlete conflicting messages and pressures from her divorced parents. These conflicting messages were not guiding the youth to make a clear and informed decision and put the athlete at risk.

The previous example illustrates that parents need to know when it is safe to support their child in returning to play. While this is important, it is also less understood than symptom recognition. Gourley et al. (2010) found that less than 70% of youth athletes and parents knew that an athlete should not return to play after being hit in the head:

The fact that only 66% of youth athletes and 68% of parents knew that an athlete with mild dizziness and a headache should not return to play following a hit to the head is cause for concern. A concussed athlete should never be allowed to return to play while symptomatic. (p. 216)

Returning to play too soon increases the risk of second impact syndrome should the athlete sustain a subsequent concussion before full recovery from the primary injury (Goldberg & Robbins, 2016). Gourley et al. also found that less than 70% of youth athletes and their parents knew that returning to play required a slow progressive process. “This may suggest that youth athletes and parents believe that once a player feels fine he or she can return to play immediately” (p. 215). The lack of return-to-play knowledge in parents is supported by Sullivan et al., (2009), who found that only 51% of parents stated

an awareness of return-to-play guidelines or protocols. This finding “illustrates what public education still needs to address regarding concussion awareness” (p. 229).

Education

In a study on exploring the knowledge and attitudes of minor hockey players towards concussions, Mrazik et al. (2014) found that parents (42%) were considered the second most helpful source of concussion information next to doctors (67%). Other findings in the research indicated that younger players were less knowledgeable about concussions and perceived concussions to be an injury of less significance. Furthermore, younger players felt they were less vulnerable to sustaining concussions which, as explained earlier, is incorrect. These findings illustrate the significant role parents play in the education about concussions and the need for parental guidance in concussion-prone sports (CPS). For parents to help educate their children, they must first know what information is available to them, and next how to find it. The distribution of educational material occurs both online and through sport organizations, such as schools and community teams/clubs.

Hachem et al. (2016) distributed a questionnaire to 109 high school principals in the Toronto District School Board (TDSB) to inquire about the implementation of concussion policy in Ontario schools under a new Ontario Policy/Program Memorandum on Concussions (PPM No. 158) that requires school boards “develop a policy to prevent and appropriately manage concussions, to be implemented by January 30, 2015” (p. 555). One of the significant highlights from the results was a lack of parental education on MTBIs. Only 44% of schools implemented a parental education program and only 23.1% of schools advertised concussion education nights held by the TDSB. One of the concerns

raised by principals was the difficulty of attracting parents to concussion education events because it is “often only parents of concussed students who attend concussion-specific events” (p. 559). This finding suggests that parents are not overly concerned with MTBI unless they have experienced it with their child. Recommendations from this study included that parents should receive information packages that outline concussion detection, prevention, and management strategies. Parents should also be required to sign a form indicating they have been educated on concussions. MTBI forms such as this have been made mandatory in Washington State as a result of the Lystedt Law (Chrisman et al., 2014).

In Washington State, where MTBI forms are required, Chrisman et al. (2014) found that most parents reported signing a concussion information form (82.9%). However, 59.7% of coaches reported not providing parents any concussion education, beyond the extent of the form itself. Approximately 25% of coaches presented additional reading, approximately 25% of coaches had a discussion with parents about concussions, 5.9% of coaches recommended a website, and only 1.6% of coaches showed parents an educational video. These findings indicate that over 40% of parents were not being educated on concussions, beyond a required form, and parents were not being educated at a consistent level.

Information sources are a critical issue in concussion education. How are parents educated? The previous studies focused on education by sport administrators and highlighted a significant gap in education where approximately half of parents may not be receiving any educational resources from these administrators. While sport administrators must improve educational delivery efforts, parents must also take

responsibility for their own education. Bloodgood et al. (2013) reports that 55% of parents reported seeking out information on concussions. Thirty-nine percent of information seekers reported using an internet search engine or a health website (Google, WebMD, CDC). Other sources of information were health professionals (14%), friends and family (6%), and social media (3%). The most trusted source of concussion information was the Centers for Disease Control and Prevention (CDC) website (24%) and healthcare professionals (10%). The CDC is the leading concussion education website in the United States. In Canada, Parachute Canada is the most cited source of concussion information (Cusimano et al., 2017; Hachem et al., 2016; Tator, 2016).

These findings highlight a clear gap in concussion awareness and knowledge. While there are many great sources of concussion information and there are concussion education programs for parents, coaches, and health practitioners, the information is not being shared to all and in some cases may even be withheld. These gaps need to be addressed and parents need to take responsibility for their own understanding of concussions as it is clear, the systems in place are not adequately tackling the problems.

Research Questions

Sport-related concussions are a significant problem for children and youth. As outlined, parents have significant influence on their children's sport participation and a significant responsibility in helping their children navigate the concussion topic. Understanding what a parent experiences during their children's encounter with a concussion was the central aim of this study along with how that experience impacted the influence parents had on the future sport participation of their children. Furthermore, this

study investigated parents' ease with their decisions. These aims led to the following research questions being explored through this study:

1. What is it like to support a child through a concussion?
2. How does a parent's concussion knowledge and experience influence decisions around concussion prone sport participation?
3. How do parents feel about their participation decisions?

CHAPTER THREE: METHODOLOGY

The purpose of this study was to explore the lived experience of parenting a child who has suffered a concussion sustained in organized youth sport and to understand the role that experience plays on the future decisions of sport participation. This was investigated through the perspective of parents of youth athletes who have been diagnosed with a concussion. Central to this research was understanding the lived experience of a parent who navigates her/his child's concussion from the moment it was suspected, through the diagnosis and the recovery, and into monitoring the post-concussion behaviour. Furthermore, it was incumbent to explore the experiences of parents being provided with and searching for information, parents' experiences with outside support systems, parents' experiences with managing the experience of the child, and the experience of future participation decisions.

Given the focus on the "experience," in an interview format, the type and depth of questions being asked and the potential variability of the responses, a qualitative research approach was utilized. This allowed the researcher to obtain rich and deep explanations, in a natural setting. Through data analysis, meanings were extracted allowing the researcher to understand the specific lived experience of the participant and find themes to compare to other participants (Henderson, 2006).

Framework of the Study

The methodology for this study is phenomenology as outlined by Max van Manen (1990). van Manen (2017) describes phenomenology as turning back to "what matters in lived or primal experience" (p. 811) and states that "What appears in consciousness is the phenomenon or event that gives itself in lived experience. And the significance of the

idea of 'lived experience' is that we can ask the basic phenomenological question, 'What is this (primal) experience like?'" (p. 811). In his work, van Manen utilizes a combination of both descriptive and interpretive approaches and argues that both traditions can be used simultaneously.

Traditionally there are two approaches to phenomenology. According to Lopez and Willis (2004), these approaches consist of Husserl's descriptive tradition and Heidegger's interpretive tradition. The descriptive tradition requires that a researcher must shed all knowledge they have about a topic and remove any bias. This is referred to as reduction. The researcher should not perform a detailed literature review and should not have specific research questions to allow the research to act rather than be acted upon. The researcher must not influence the object of study. During interviews, researchers must withhold any preconceptions and knowledge they may have so as not to influence the responses. This is referred to as bracketing. Husserl expressed that if researchers can understand the meaning of a lived experience without context, then they have performed rigorous scientific methods, as the results are objective and independent of context, much like the scientific process.

The interpretive tradition, according to Lopez and Willis (2004), uses hermeneutics, "a process and method for bringing out and making manifest what is normally hidden in human experience and human relations" (p. 728). Hermeneutics looks for meaning in life experiences. Freedom of choice is another significant focus on the research. Heidegger believed that humans live in the world and cannot remove themselves from it. The world affects them, and they affect the world. Interpretive phenomenology (hermeneutics) seeks to understand the meanings of life experience,

through interpretation, and how this influences choice. Heidegger rejected reduction and felt it was impossible to rid oneself of prior knowledge and be completely objective.

Unlike the descriptive tradition, the interpretive tradition invites and encourages a literature review and a solid understanding of the topic in question to help guide the research and uncover deep and poignant meanings. This does not mean one must have personal experience in the phenomena, but one ought to become familiar with the topic.

van Manen's hermeneutic phenomenology is built on eight principles of phenomenological research. The first principle is that "phenomenological research is the study of lived experience" (van Manen, 1990, p. 9). It aims to understand the "nature or meaning" of an experience. This study sought to understand the experience of a child's concussion from the parent's perspective and how that experience influences sport participation behaviour.

The second principle, according to van Manen (1990), is that "phenomenological research is the explication of phenomena as they present themselves to consciousness" (p. 9). This is predicated on the fact that one must be able to recognize their feelings and understandings of an experience for the phenomenological approach to be utilized. This research asked the participants to recount their experience of their child's concussion as it happened and what impact it had on them. Any information that is unknown to the participant will not be uncovered.

Third, "phenomenological research is the study of essences" (van Manen, 1990, p. 10). Through phenomenology, a researcher can use data to build a structure that takes shape to allow the audience to understand the nature and significance of an experience, in other words, its essence. One goal of this study was to depict the nature and promote the

significance of the concussion experience to signify the value of the voices who live through the phenomenon.

Fourth, “phenomenological research is the description of the experiential meanings we live as we live them” (van Manen, 1990, p. 11). Unlike other social or human sciences, phenomenology seeks to describe and interpret meanings from everyday life through the perspective of the one who lived it. It does not derive meaning from statistical patterns or human behaviour frequency. This study did not aim to collect statistical data to identify meaning, but rather it aimed to derive meaning from the narratives of the participants who lived them.

Fifth, “phenomenological research is the human scientific study of phenomena” (van Manen, 1990, p. 11). This statement aims to distinguish itself from natural science, as phenomenology studies humans and does so scientifically through systematic, explicit, self-critical, and intersubjective methods. This research was systematic as it followed the methodological structure of van Manen’s phenomenology. It was explicit as it articulately textualized the lived experience and highlighted meaning rather than allow meaning to be subjective. The research was continually assessed by the researcher and research supervisor to ensure that the process was congruent with the research goals. Finally, this is an intersubjective study, as the research is dependent on the participants to provide the ideas that form meaning and on the reader to recognize those meanings to validate the lived experiences as presented.

Sixth, “phenomenological research is the attentive practice of thoughtfulness” (van Manen, 1990, p. 12). Phenomenology offers opportunity to describe, interpret, and share the lives of others, and must do so with thoughtfulness and integrity. Participants

must feel safe in sharing their stories, and researchers must be respectful and thoughtful in how those stories are presented. This study asked participants to share memories of enduring the event of a concussion and the process of recovery. The event itself, the process, and even the outcomes of this experience may be difficult to share, and it was imperative that research practices, from participant interaction to the reporting of findings, were done in a thoughtful manner.

Seventh, “phenomenological research is a search for what it means to be human” (van Manen, 1990, p. 12). As phenomenological researchers seek meaning, they find truth. They discover what life is like for that person, what it means for the person to exist in that experience and from the person’s point of view of what life is like. The responses shared in this study from the participants offer an opportunity to see the unique individual experience from one participant to the next.

Finally, “phenomenological research is a poetizing activity” (van Manen, 1990, p. 13). Phenomenology, like poetry, does not share its conclusion at the beginning, but aims to guide the reader through narratives that give the conclusion life. Phenomenology is a collection of experiences that uncover greater meanings. It is the process of uncovering these meanings and articulating their significance with the audience that is poetic. “The creative contingent positioning of words may give rise to evoked images that can move us: inform us by forming us and thus leave an effect on us” (van Manen, 2007, p. 25). This research underwent many re-writes in an effort to live up to the poetic claim of van Manen.

The research of van Manen has been extensively used in nursing and health research (De Chesnay, 2014; Hakimi et al., 2016), but has also been utilized in sport,

recreation, and leisure research (Cronin & Armour, 2015; Shannon, 2013). As this study was a combination of both health and sport, recreation, and leisure research, the van Manen approach is well supported. van Manen (1990) uses a six-step methodological structure for research which includes: (1) turning to the nature of lived experience, (2) investigating experience as we live it, (3) reflecting on essential themes, (4) the art of writing and rewriting, (5) maintaining a strong and oriented relation, and (6) balancing the research context by considering parts and whole.

Turning to the Nature of a Lived Experience

The first step, turning to the nature of a lived experience, encourages the researcher to orient to the phenomenon, formulate the phenomenological question, and explicate assumptions and pre-understandings. van Manen (1990) explains that “when one orients to a phenomenon one is approaching the experience with a certain interest” (p. 40). As a former football athlete who has suffered a concussion, a former coach, and a parent, I am trapped between a love for the game with a desire for its future and the risks of the game and the unease I hold of my own posterity participating in concussion- prone sport.

Exploring this topic through a phenomenological approach requires that the researcher asks what the experience is like. The experience in question here is the experience of supporting a child who has suffered and recovered or is recovering from a concussion. Understanding what the experience is like is central to the study. As researchers look to explicate assumptions and pre-understandings, they may find themselves in a quandary. van Manen (1990) points out that the problem with phenomenology is not that too little is known about the phenomenon, but that too much is

known. Husserl's descriptive phenomenology would call on bracketing to take one's knowledge and to forget it, so that the researchers are not influenced by their own understandings and opinions; however like Heidegger, van Manen rejects bracketing and asks, "If we simply try to forget or ignore what we already 'know,' we may find that the presupposition persistently creep back into our reflections. It is better to make explicit our understandings, beliefs, biases, assumptions, presuppositions, and theories" (p. 47).

As a researcher, I have read about the awareness and knowledge levels of parents and their youth athletes (Lin et al., 2015; McAllister-Deitrick et al., 2014; Mrazik et al., 2014). I have read about concussion protocols and return-to-play guidelines, (Hachem et al., 2016; Hänninen et al., 2016; McGuckin et al., 2016). I have read about the effects of a concussion (Echemendia & Julian, 2001; Gavett et al., 2012; McKee et al., 2013). Furthermore, I have read about sport culture and how it influences MTBI reporting and stigma (Delaney et al., 2015; McGannon et al., 2013; Shurley et al., 2012). Despite the studies on these topics surrounding concussion, none of them articulates what that experience is "like." Understanding the experience was only achieved through asking someone who lived it to describe the lived experience from their point of view. I carefully addressed my knowledge and bias and built questions that were not leading or grounded in assumptions. I also carefully reviewed interviews to ensure I was not using my assumptions and pre-understandings to shape follow-up questions. I questioned my interpretations to specifically look for bias.

Investigating the Lived Experience

The second step, investigating the lived experience, compels researchers to start at their own experience, then to trace etymological sources, obtain experiential descriptions

from others, and consult experiential literature which can be in the form of biographies, journals, art, or phenomenological literature. As someone who has experienced the concussion process (before concussion education and protocols were widely recognized, taught, and enforced), I have a starting point of what to look for. However, as concussion recommendations evolve and are implemented, I moved into unknown territory and looked to discover those experiences.

Obtaining experiential descriptions from others can be accomplished through protocol writings, interviews, or observations (van Manen, 1990). This study employed in-depth, semi-structured interviews to extract the lived experience. This was completed through a combination of face-to-face interviews, Skype interviews, and phone interviews. The interviews were “used as a means for exploring and gathering experiential narrative material that may serve as a resource for developing a richer and deeper understanding of a human phenomenon” (van Manen, 1990, p. 66).

Finally, consulting experiential literature was done through searching academic databases (e.g., Academic Search Premier, SPORTDiscus, PsycINFO, PubMed) for phenomenological studies on concussions. Only one article was found that directly studied concussions through a phenomenological approach (McGuckin et al., 2016).

Reflecting on Essential Themes

The third step, reflecting on essential themes, aims to “grasp the essential meaning of something” (van Manen, 1990, p. 77). As parental experiences are unique to each participant, it is important to grasp the different meanings presented so that a researcher can understand the exclusive lived experience and present it for that participant. This was accomplished through “thematic analysis.” The Academic

Supervisor was utilized during this step to ensure the coding practices were logically performed and the themes were supported by the coding process. van Manen (1990) identifies three approaches to isolating themes: (1) the wholistic or sententious approach, (2) the selective or highlighting approach, and (3) the detailed or line-by-line approach. This study utilized the detailed approach, and as each line of a transcribed interview was read, I asked, “What does this sentence or sentence cluster reveal about the phenomenon or experience being described?” (p. 93). Then, each sentence or sentence cluster was assigned a code that eventually generated both non-essential themes (those not reflective of research questions, such as a parent’s perception of safety according to sport type) and essential themes (those reflecting the research questions, such as managing child’s experiences with recovery). It is these themes that generated meaning and it is meaning that fuels the purpose of phenomenology.

The Art of Writing and Rewriting.

This step tasks the researcher with the responsibility to present the argument supported by findings in a way that represents a lived experience. Phenomenology asks participants to share their experiences in detail, which can result, depending on the study and questions, in responses of a highly sensitive nature. It is the responsibility of the researcher to share all relevant information and to do so with poise and tact. This research had the potential to challenge participants to consider the ethical aspects of their children’s sport involvement, and therefore the collection of sensitive material was acknowledged and considered. To ensure that the experiences have been represented, the themes have been supported, and the meanings have been extracted, I was cognizant in asking, “What is the best way to present the data?”

Maintaining a Strong and Oriented Relation

This fifth step warns the researcher to not become “enchanted with narcissistic reflections or self-indulgent preoccupations, or to fall back onto taxonomic concepts or abstract theories” (van Manen, 1990, p. 33). I did not deviate from the purpose of the research and was not led down paths of irrelevance. It was important that, during interviews, I kept the participants on topic and not become distracted by stories that did not address the question. As a researcher, I questioned how the content related to the research questions, and if the relationship was non-existent or weak. Then, I had to adjust to obtain and report only relevant information.

Balancing the Research Context

The sixth and final step, balancing the research context by considering parts and whole, requires the researcher to ensure that the different parts all work together to a collective goal. These goals are to (a) answer the research questions and (b) to describe the phenomenon. van Manen (1990) warns against delving too deeply into raw data without contextualizing the meaning that explains the phenomenon. That required me to examine the parts of the research and ensure they were presented in a logical sequence and the value of content supported the research.

Selection of Participants

Participants were selected using purposeful sampling. This process involved selecting information-rich cases which possess the potential to reflect the central ideas that support the purpose of the study (Patton, 2015). Participant criteria included parents (or legal guardians) of children aged 8-17 who had suffered a sport-related concussion (SRC) from football, rugby, hockey, ringette, or soccer, and had completed recovery

(within the last three years) or are in prolonged recovery (more than 4 weeks) (McCrorry et al., 2017). Furthermore, all children had to be living with their parents at the time of the interview. These criteria ensured that participants had experience with the process of SRC and had a good recollection of the process, while maintaining a degree of influence in their children's leisure pursuits. Participants were limited to those who resided in the Maritimes.

Participants were self-selected yet targeted. Recruitment letters (Appendix A) were sent to youth-serving sport organizations, such as community and school teams, for them to distribute to parents. In addition to a recruitment letter, social media posts were circulated to groups and pages (with permission of owners) using a social media poster (Appendix B). Potential participants who initiated contact were sent an email (Appendix C), which included a participant information letter (Appendix D). Following this email, if the potential participant expressed a desire to become a participant, a letter of consent (Appendix E) was then sent to the potential participant to be signed prior to data collection. The email also clarified the opportunity to meet (e.g., time, place).

Seven participants (5 mothers and 2 fathers) participated in this study. Children of the parents (2 daughters and 5 sons) ranged in age of 15-17 years old. Some children played multiple sports but the sports that reflect concussions were as follows: One child was concussed in football, two children in hockey, one child in rugby, two children in soccer, and one child in both ringette and soccer. All participants lived in New Brunswick. Four participants were interviewed via phone, two participants were interviewed via Skype (video conferencing software), and one participant was interviewed in person. All participants met the criteria for the study.

Patton (2015) identifies 40 strategies of purposeful sampling, one of which is saturation sampling. Saturation sampling is an ideal strategy when the sample size is small. The point of this strategy is to sample until saturation has been achieved or redundancy is common. Saturation cannot be predetermined; therefore, a sample size cannot be specifically set. van Manen (year) argues that saturation is not relevant with phenomenology because a phenomenological question is “bottomless.” The potential responses are endless, and the same respondent can add more through time. The meaning of each experience can change with time and is unique to each individual respondent. Therefore, one can never reach saturation from utilizing phenomenological inquiry (van Manen et al., 2016). While one may not reach saturation from the technical perspective described by van Manen, there are other ways to achieve saturation using phenomenology. Other researchers consider data saturation to be achieved when no new constructs are emerging, or no new patterns have formed, and when a repetition of themes is found (Bauer & Aarts, 2000; Green & Thorogood, 2004; Limb, 2004). This occurs during data analysis when any new data are simply confirming the findings of previous data as opposed to offering new emerging ideas.

While van Manen (1990) does not offer guidance regarding sample size in his approach, other phenomenological student researchers do. Using these examples of sample size from other master’s theses (Hardy, 2013; Joseph, 2011; Presse, 2011; Spanner, 2012), this study set a recruitment range of 7 to 10 participants, with the understanding of the need to potentially condense or expand that sample size based on saturation and redundancy.

During data analysis, themes consistent with experiences of multiple participants began to solidify after six interviews. The seventh interview continued to supply information that was unique and reflective of an individual experience that also was reflective and confirming of the themes generated by previous participants. While recruitment efforts continued after the seventh participant, it was believed that saturation had been reached and further interviews would only continue should a participant qualify. No more participants were secured following the seventh participant.

Data Collection

As guided by van Manen (1990), in-depth semi-structured interviews were conducted to understand the lived experience of supporting a child through a concussion. An interview guide with pre-determined questions was utilized to ensure all the same questions were being asked to all participants (Patton, 2015). The interview guide (Appendix F) followed a natural progression of five sections. The first section inquired about the sport participation and concussion history of participants' children (e.g., what sport(s) does your child play; how many concussions has your child been diagnosed with?). The second section inquired about a parent's knowledge of concussions and their knowledge sources (e.g., describe the symptoms a person with a concussion would experience; describe your experiences with searching out information or receiving information on concussions?). The third section inquired about the experience of supporting their child through a concussion (e.g., describe the moment when you found out your child had a concussion; describe your experience helping your child through recovery). The fourth section inquired about how their knowledge and experience played into their decisions around their child's concussion-prone sports (CPS) participation (e.g.,

how has your child's sport participation changed since the concussion; what factors were most influential in the changes [or lack there-of] around concussion prone sport participation).

The concluding section inquired about the participants' satisfaction with their decisions (e.g., describe how you feel about the decisions you have made during your daughter's/son's recovery and about her/his sport participation; what are some factors that may change your mind). Probing questions were also integrated into the interview guide and were utilized to clarify responses, elicit deeper descriptions of the experience (Patton, 2015), and as a method to curb generalization and redirect the discussion to the specific experience (van Manen, 1990). Interviews were conducted in a quiet and private space that worked best for the participant and lasted between 45 and 90 minutes.

Data Analysis

The data were analyzed concurrently with data collection for two purposes: (1) as a strategy to ensure the data collection tools were achieving the desired results and (2) as a method to gauge data saturation. Interviews were recorded and transcribed verbatim, then analyzed and coded line by line. Line-by-line coding is a process used by van Manen (1990) that involves reading each line of transcription and assigning a code to each key aspect that will be used to generate themes. An initial set of 200 codes was assigned and then input to NVivo 9 – qualitative data management software – to efficiently organize and view the data. These initial codes (or nodes as NVivo calls them) were then placed into 51 categories in an effort to lump similar codes and organize ideas. These categories were then used to generate a thematic analysis, which was a combination of categories that developed five essential themes. These essential themes were then used to present the

data and were supported by specific descriptions and quotes of the experience from the participants. Seven subthemes were also generated to help organize the overall essential themes. Once all transcripts were coded, an additional thematic analysis was conducted to determine if the themes were representative of each participant’s experience. This process was repeated for each transcript. Table 2 offers examples of how participant quotes were coded, categorized, and finally attributed to a theme:

Table 2

Data Analysis Coding Examples

Quote	Code	Category	Theme
“I think it’s our responsibility as the parent, to educate ourselves.”	Parent Beliefs	Personal Information Sources	Theme 1: Parents’ Experiences with Concussion Information
“They were like little mother hens checking on her. I really, really trust that they know what they are doing.”	Coach Recovery Actions	Sport Recovery Experience	Theme 2: Experiences with Others in the Recovery Process
“He had no problem following the protocol.”	Child Recovery Actions	Recovery at Home	Theme 3: Managing Child’s Experiences with Recovery
“He would be miserable if he didn’t have sports.”	Relationship with Sport	Benefits of Participation	Theme 4: Parents’ Experience with Valuing Sport while Accessing Risk of Playing
“Yeah, no. well I can’t say satisfied that he’s not playing. I can’t sit there and say ok I’m satisfied that you’ve made this decision not to play... I’m heartbroken.”	Parent Desires	Satisfaction	Theme 5: Parents’ Experiences with Their Response and Decisions during Recovery

The data analysis generated five essential themes and seven subthemes that depict the experiences of parents supporting their child through a concussion. Theme one: *“I think it’s our responsibility as the parent, to educate ourselves”*: *Parents’ Experiences with Concussion Information*, delves into the experience with receiving or searching for concussion information. This theme contains two subthemes. The first: *“That’s not our fault, that’s part of sport”*: *Experience with Information Supplied*, delves into the experience of information provided to parents by sport organizations and health care professionals. The second subtheme: *“It’s mind boggling”*: *Experience with quest for information*, describes the experience parents had with searching for more concussion information on their own. Theme two: *“They were like little mother hens checking on her”*: *Experiences with Others in the Recovery Process*, looks at the experience’s parents had with school personnel, health care professionals, and coaches, during recovery and the impact they all had. This theme was divided into two subthemes. The first: *Searching for Support: Experience with Others in the Return to School*, looks at the influence of people outside of the family during the transition back to school following a concussion. The second: *“He’d say one thing, but yet they were telling us another”*: *Experiences with Others in the Return to Sport*, highlights the influence of people outside of the family during the transition back to sport during and following concussion recovery. Theme three: *“He had no problem following the protocol”*: *Managing Child’s Experiences with Recovery*, shares the experiences of parents as they support their child through recovery and respond to their child’s reaction to the recovery process. Theme four: *“Not letting him play – it is almost worse than letting him get hurt by playing it”*: *Parents’ Experience with Valuing Sport while Assessing Risk of Playing*, describes the experiences

parents had with recognizing the value of sport for their child and themselves while considering the risks of sport participation. This theme included three subthemes: The first: *“Rugby changed her life”*: *Parents Recognizing the Value of Sport in their Children’s Lives*, delves into parents’ perceptions of the value of sport according to their children. The second: *“It’s actually something we have bonded over since he started playing”*: *Parents’ Experience with Connecting to their Children’s Sport*, depicts the connection parents have with their child’s participation in sport. The final: *“I was on the fence about if I made the right decision or not”*: *Parents Torn as they Evaluate the Risk and Reward of Sport Participation*, looks at the dilemma parents had to navigate when considering their child’s return to sport. The final theme: *Uncomfortably Satisfied: Parents’ Experiences with their Response and Decisions During Recovery*, shares the satisfaction parents have regarding their role in concussion recovery and their decisions of support regarding future sport participation.

Ensuring Trustworthiness of the Data

To ensure the trustworthiness of the data, Creswell (1998) offers five questions a phenomenologist should ask him/herself. The first question a phenomenologist must ask is this: Did the interviewer influence the contents of the subjects’ description in such a way that the descriptions do not truly reflect the subjects’ actual experience? To address this question, I incorporated two methods to ensure my bias is held in check – *clarify researcher bias* and *employ member checks* (Strauss & Corbin, 1990). The first step was to identify any bias and record those biases in a reflective journal. Journaling throughout the data collection and analysis processes was employed to ensure I was constantly aware of my own bias as data emerged and how those biases affected collection, interpretation,

and presentation. As a former football player, former football coach, and a current parent, I have had experiences with concussions both personally and as a coach. These experiences presented natural bias and it is these biases that drew me to the topic itself. One of my largest concerns in interviewing parents was being able to keep my opinions and reflections out of the interviews and allow the participants' responses to guide discovery. A sample of a journal entry is included as Appendix G. The second step taken was to verify the findings of interviews with participants, and ensure my interpretations reflected their feelings and experiences. This was accomplished by sending an email that contained a feedback letter (Appendix H) which thanked participants for their participation and invited them to read an attached executive summary of the findings (Appendix I). Participants were invited to contact me to provide any feedback on the study and any concerns would have been discussed and corrected to ensure an accurate account of the experience. No participants expressed any concerns with the study.

The second question to be addressed, according to Creswell (1998), is this: Is the transcription accurate, and does it convey the meaning of the oral presentation in the interview? To ensure accuracy, all interviews were verified by reading the transcript while listening to the interview. To ensure it conveyed the meaning of the interview, special attention was given to note the tone and speech inflection to represent the mood of the interview and provide context to the words when necessary.

The third question recommended by Creswell (1998) to address is this: In the analysis of the transcriptions, were there conclusions other than those offered by the researcher that could have been derived? Has the researcher identified these alternatives? Ensuring that alternative conclusions were considered, I looked for alternatives in the

data and attempted to evaluate their credibility. Ultimately, the most significant information was agreed upon with my academic advisor.

Creswell's (1998) fourth question to consider is this: Is it possible to go from the structural description to the transcriptions and account for the specific contents and connections in the original examples of the experience? Ensuring the connectivity of the transcripts and the structural description would likely require *peer review* or *debriefing* (Strauss & Corbin, 1990). I was too involved to effectively step back and look at the information from a new lens to ensure the descriptions reflected the transcriptions. Utilizing my academic advisor was a key component to ensuring the data reflected the descriptions.

The final question offered by Creswell (1998) to consider is this: Is the structural description situation specific, or does it hold in general for the experience in other situations? As the researcher, I asked myself if these descriptions were applicable to other experiences and were not reflective of the authenticity to the specific phenomena. While the themes reflected are not inherently unique to the concussion experience (other injuries could have similar experiences), the themes that were derived were reflective of the phenomenon being explored.

Ethics

An application for ethics approval of this study was submitted to the Research Ethics Board (REB) at the University of New Brunswick because it involved human participants. REB approval was granted. All participants were informed about the entire scope of the research including their requested role in the research. This information was provided in the form of a recruitment letter. All participants were

provided with an email address to submit any questions or concerns. All participants signed a consent form before contributing to the research. Participation in the study was entirely voluntary and participants were informed they had the opportunity to withdraw from the study at any point. In addition to having the right to withdraw, participants also retained the right to pass on any interview question, and the right to redact responses during the interview. None of the participants chose to withdraw, skip questions, or redact responses.

All interviews were recorded on a digital recording device that stored information on a removable memory card. The contents of the memory card were promptly transferred to a password-protected computer and the memory card itself was stored in a locked cabinet along with any physical transcripts. All consent forms were locked in a separate cabinet and all electronic transcripts were stored on a password-protected computer in a password-protected folder. All participants, and their family members, were assigned pseudonyms that were used in all verbal and written references of the data. The true identities of the participants are only known by the principal investigator and were only recorded on consent forms.

CHAPTER FOUR: PARTICIPANTS

The participants in this study all had one thing in common: they all had a child who received a concussion from playing a concussion-prone sport. While this commonality made them similar, many factors made each lived experience unique. The way each parent's child was injured, and the actions taken by each child, the parents, coaches, and even health professionals differed in each experience. These differences influenced the entire recovery process to some extent. This chapter provides context to each experience and an overall narrative that describes how the event occurred for each parent and their child. Offering information about the parents in this chapter will be helpful to the reader in Chapter 5 when the essences of the experience are presented.

Angela and Alex

Angela is in her late 40s and works in the health care field. She has been married for over 15 years and has two children. Her son Alex is 15 years old. Alex plays soccer, hockey, rugby, and enjoys skiing. Alex has been diagnosed with one concussion from soccer (at the age of 14) which occurred in May 2018 and was considered to be recovered from that concussion at the one-month mark. Alex's concussion occurred during soccer practice as Angela recalls:

Alex said that he had gotten hit on the back of the head with a ball . . . he said he had a headache and he was feeling nauseous and he explained what had happened and he had explained that his coaches had recognized it right away and told him to come sit and so he had sat for the rest of the practice.

Alex's injury was not reported to Angela by the coaches, but rather "they told Alex to make sure to tell us what had happened." After Alex told his mom, Angela immediately

left for the hospital and it was “at the hospital they diagnosed him with a concussion, and we got the referral to go to the concussion clinic.” Later, Alex attended a concussion clinic and returned to playing soccer and hockey after recovering.

Bryan and Brianna

Bryan is in his late 30s and works in corrections. His daughter Brianna is 16 years old and plays soccer, ringette, and volleyball. Brianna experienced three diagnosed concussions. The first was sustained in ringette sometime between January and March 2013. The second was also sustained in ringette sometime between January and March 2014. The third occurred while playing soccer in October 2016. Brianna’s recovery for the first concussion took approximately one week, the second took approximately two weeks, and the third took approximately three months. Bryan recalls his daughter’s first concussion:

We were watching the game and when it happened, it was a pretty big hit so both times, the first and second one. When she’d stand up, she’d shake her head and try to shake it off. But she’d go back to the bench. She’s very stubborn. She won’t show that she’s weak. She was denying of having headaches and stuff. That’s why we didn’t think too much about it.

After the first concussion Bryan took Brianna to the hospital “and they told us stay off the electronics. Stay in your room a little bit, not too much activity.” The second concussion occurred during a morning game, and Bryan let her play the next game that night.

And the next morning we were very worried because of her symptoms. Then she was very nauseous, and we brought her to hospital. And that’s when they

[emergency doctor] told us it was very dangerous of us letting her play that same night. Could have really . . . if she would have had another hit to the head, it could have been very serious.

Her third concussion “was just a soccer ball to the head. Nothing too serious. And that totally messed her up.” Bryan then went to a concussion clinic and was advised to pull Brianna from sport. After a three-year departure from sport, Brianna returned to play with the approval of her doctor and the advice of a psychologist.

Crystal and Caleb

Crystal is a woman in her late 30s who is a farmer and holistic nutritionist. Her son Caleb plays hockey, golf, rugby, and soccer. Caleb has suffered two diagnosed concussions and one suspected concussion. One of the diagnosed concussions and the undiagnosed concussion both occurred in hockey prior to 2013. The third concussion also occurred in hockey in December 2017. Caleb was still reported to be in recovery at the time of the interview in December 2018. The latest concussion was the primary focus of Crystal’s interview. Crystal recalled Caleb’s most recent concussion:

We were at a hockey game, there was only like five minutes left of the hockey game and Caleb was . . . at the center line or something and someone passed him the puck and then this kid just came up and just smashed him in the head. Which, he came from behind, so he didn’t see him, so he smashed him in the head and pushed him basically into the ice. Where he smashed his head, his neck flew back. . . . Caleb did get up and tried to make it over to the bench. When he was going over to the bench, I saw him kind of collapse.

Once Caleb was assisted off the ice by his teammates, he was taken to the dressing room and remained there for the rest of the game. When he came out of the dressing room, Caleb's coach said, "He got hit really hard, so hopefully he's okay' or something like that and then that was it." Crystal then drove Caleb home, but knew that something was not quite right.

Right away we [she and her partner] both could tell there was something wrong because he was just acting really dopey, he said his head hurt. He was taking a long time to answer questions. So we knew there was definitely an issue.

Based on her previous experiences with concussions, Crystal decided to monitor him at home and decided, "If he starts to get worse, we will take him to the hospital, otherwise we will take him to the doctor the next day unless he miraculously feels much better. Which wasn't the case." The next day Crystal took Caleb to the doctor who then diagnosed Caleb with a concussion and provided them with the recovery protocol. Unfortunately for Caleb, he continues to be reinjured in non-sport events. This included being hit in the head accidentally by a peer; being hit on the head with a badly thrown textbook, and getting his head hit during a fight at school. The last event occurred two months prior to the interview with Crystal for this study. She explained that Caleb's chiropractor said, "He was back to being in the original state," as if he had not recovered at all.

Dawn and Daniel

Dawn is a 43-year-old mother who works at a bank. Dawn has two children, one of which is her son Daniel. Daniel is a 17-year-old who plays football. Daniel has suffered one diagnosed concussion in football on November 2018. He was reported to

have recovered from that concussion after approximately 10 days. Neither Dawn nor Daniel were able to identify the exact moment the concussion occurred, but after the game Daniel told his mom: “I think I gave myself a concussion. But it was worth it.” This type of rhetoric was common for Daniel, so Dawn thought nothing of it. Days later Daniel started reporting concussion symptoms. Dawn recalled that “he got [the concussion] on Saturday and when he came home from school on Monday, he said he thought he had a concussion . . . but he refused to go to the hospital.” Dawn advised Daniel to see the school athletic nurse, but after the nurse was unavailable, Dawn took Daniel to the hospital. The nurse practitioner at the hospital advised Dawn to visit the concussion clinic once Daniel was feeling better and wanting to return to play; however, Daniel’s season was over, so Dawn did not feel it was necessary to see a specialist. At the time of the interview, Daniel was considering returning to football in the fall of 2019, and was considering joining rugby in the spring of 2019.

Elizabeth and Ethan

Elizabeth is a woman in her early 50s. Her son Ethan is 15 years old and plays both soccer and football. Ethan has been diagnosed with four concussions and has had three more suspected concussions. Of the four diagnosed concussions, only one was related to sport. That concussion occurred in soccer in November 2016. He was cleared to return to play within 3-4 weeks. The three undiagnosed concussions were treated by Elizabeth using the recovery protocols she found online. Elizabeth explained the event that caused Ethan’s sport-related concussion:

So what they do is they have all the goalies together, one goes in the net, the others take shots and you try to defend the shot. So he was going down for a

header on a crossing drill and the other goalie went to side kick it, and when he went to side kick it, he missed the ball and hit Ethan's head because Ethan was down far enough.

After being brought to the hospital in an ambulance, Ethan was diagnosed with a concussion. Elizabeth took him to a concussion clinic to help his recovery. Taking the advice of the physiotherapist, Ethan stopped playing as a goalkeeper, but continued to play soccer following recovery. Ethan also refrained from using his head to contact the soccer ball for almost two years out of fear. Ethan did return to his former position as a goalkeeper after taking a year and a half break.

Felicia and Faith

Felicia is a 46-year-old woman who works for an insurance company. Felicia has two daughters who both play rugby. Her daughter Faith, who is 17 years old, also plays football, soccer, and basketball. Faith has suffered two diagnosed concussions, both occurred in rugby. The first occurred in April 2018 and took approximately one week from which to recover. The second occurred two months later in June 2018 and recovery took approximately one month. Recalling Faith's first concussion, Felicia said: "She went to tackle someone and someone else came in from the other side and smashed her right on the top of her nose. So she broke her nose with it as well." Faith was diagnosed at the hospital.

Faith's second concussion was not as noticeable and went undetected at the game: [Faith was hit and] she sort of like stayed down for a second . . . she just put her hands on her knees . . . and then she stood up . . . She was a little slower to get up

and then she was fine. She just kept going . . . And I thought, ok they didn't rock her too hard, right?

It was not until after the game that Faith told her mom that "she took that hit and now her head was sore" and Felicia confirmed it was the same hit she noticed Faith was slow to get up from. That concussion was never actually diagnosed until a month later when Faith was diagnosed with post-concussion syndrome by a physiotherapist, confirming Faith had suffered a concussion. That concussion occurred at the end of the rugby season, but after recovering, Faith returned to sport playing football in the fall of 2018 and, at the time of the interview, was planning to return to rugby in the spring of 2019.

Greg and Gavin

Greg is in his mid-40s and works for a grocery store. Greg's son Gavin is a 15-year-old who plays hockey. Gavin has been diagnosed with four concussions. Of those four, three occurred in hockey and one was not sport related. Of his hockey concussions, Greg was not confident about the dates of the first two but indicating only that Gavin's first occurred sometime in 2013, his second in 2014 or 2015. Gavin's third (and most recent) concussion happened in March 2018. For his first two concussions, Gavin recovered within a week. For his most recent concussion, Gavin was cleared to play after approximately a month and a half. Greg recalls each concussion:

The first time I think he ran into the boards . . . He finished the game and came off after . . . They [hospital staff] said it was minor . . . The second one was a little bit more scarier because he collided with the bigger player and . . . fell back and hit his head on the ice . . . I ran down to the locker room to see if everything was alright because for him to come off the ice, it was abnormal . . . So we were

scared then. And the doctor [family physician], then, suggested that he stop playing hockey, but he didn't want to If he wanted to play, then he was going to get out there and play. [For the latest concussion] He was knocked out on the ice His head got smashed up against the boards . . . He was retrieving a puck, going back along the boards, and the kid come cross the ice and high sticked him . . . and he just dropped, like limp . . . Went unconscious . . . The play kept on going, I was yelling across the fucking [arena] . . . to stop the play, like the kid, he was unconscious, no movement from him. And they just kept on playing and eventually the whistle got blown and the coaches came out and players came out and grabbed him and you know, brought him off the ice and into the dressing room.

Greg took Gavin to the hospital right away, and later to a physiotherapist for recovery. Gavin briefly returned to sport following recovery, but “whenever the coach decided to put him on [the ice], he'd be different like he wasn't playing his game.” Since his limited return, Gavin has chosen to take an extended break from hockey, and it is unclear if he will ever return.

CHAPTER FIVE: FINDINGS

The purpose of this study was to explore the lived experience of a sport-related concussion (SRC) through the perspective of a parent, and how that lived experience influenced decisions around their children's leisure behaviour in concussion-prone sports (CPS). This study was guided by three main research questions. The first research question investigated what it was like to support a child through a concussion. The second research question asked how parents concussion knowledge and experience influenced decisions around CPS participation. The final research question asked how parents felt about their participation decisions.

Five major themes emerged during the data analysis that best represent the lived experience of parents whose child had suffered a SRC:

Major Theme 1: "I think it's our responsibility as the parent, to educate ourselves": Parents' Experiences with Concussion Information. This theme investigates parents' experiences with learning about concussions.

Major Theme 2: "They were like little mother hens checking on her": Experiences with Others in the Recovery Process. This theme delves into the experience's parents had with health professionals, coaches, and school administrators and teachers. The people who work in these roles have an impact on the experience of both the parent and the concussed youth.

Major Theme 3: "He had no problem following the protocol": Managing Child's Experiences with Recovery. This explores the experiences parents had with the recovery process and the role parents played in that recovery.

Major Theme 4: “Not letting him play – it is almost worse than letting him get hurt by playing it”: Parents’ Experience with Valuing Sport while Assessing Risk of Playing.

This unpacks the experiences parents had when being confronted with returning to sport.

Major Theme 5: Uncomfortably Satisfied: Parents’ Experiences with Their Response and Decisions During Recovery. This looks at the satisfaction parents have with their experience through the recovery and with their decisions following recovery.

“I think it’s our responsibility as the parent, to educate ourselves”:

Parents’ Experiences with Concussion Information

During the data analysis, it was clear that the informational resources parents had available to them affected their experience with the recovery process. While parents were given information to support their child in the recovery process, parents also took responsibility for assessing that information or accessing additional information. This theme is divided into two subthemes that highlight the parents’ experiences with concussion information. The first subtheme, *That’s Not Our Fault, That’s Part of Sport: Experience with Information Supplied*, discusses parents’ experiences with the concussion information that was provided by sporting organizations and health professionals. The second subtheme, *“It’s Mind Boggling”: Experience with Quest for Information*, explores the experience of parents in searching for and evaluating concussion information.

“That’s not our fault, that’s part of sport”: Experience with Information Supplied

Parents in this study reported receiving scattered concussion information during their child’s experience in sport and during their experience with the concussive event and subsequent recovery. While some sport organizations were reported to provide

information on a reactive basis rather than a preventative one, other sporting organizations were reported to not provide any information at all but rather to have it available for people to find. Similarly, some health care professionals were reported to provide helpful information and to educate parents and their children, while other health care providers were reported to be unhelpful, or to provide misguided information.

There was only one parent who reported being provided with concussion information, as a parent, by their child's sport organization prior to any concussive experience. Bryan, whose daughter plays ringette, stated that as parents: "We don't receive any communication. Nothing at all. No info." A similar experience was shared by Greg, who indicated that he received no information from their hockey organizations until his son was concussed. Greg explained that he was then provided with information on concussion recovery from his local minor hockey association that outlined "certain steps he had to go through to be able to get back on the ice." Another parent, Felicia, also indicated that her daughter's sport organization provided information, but it was only during concussion recovery and it was not communicated to Felicia, but rather Faith through verbal feedback at practices. Another parent, Elizabeth, who serves as a volunteer for her local minor football organization for whom her son Ethan once played, explained that you are only provided concussion information "if you're carted off the field with a possible concussion." She said that later "they'll have someone follow up with you and make sure you sought out medical advice." But when it comes to being provided with information prior to suffering a concussion, Elizabeth said that there was information available on the organizational website, but it wasn't specifically shared with parents. While Elizabeth explained that no information is distributed to parents, she also

noted that during the time of registration “there’s a disclaimer that if your child gets hurt that, you know, we’re sorry, but that’s not our fault, that’s part of sport.” Elizabeth later speculated that the reason for a lack of distributed information may be rooted in the fear of parents deciding not to register their children. She stated: “If you had all this info given to you at the beginning, would it freak you out and deter you from having your child play sports?” Elizabeth believed that regardless of an organization’s efforts at concussion education, it is ultimately “our responsibility as the parent, to educate ourselves.”

Like Elizabeth, another volunteer of a minor football association, Dawn, explained that “there’s always been resources in some form, but they’re kind of generalized.” Dawn was the only parent that reported being provided with concussion information prior to a concussive event. This occurred when her son, Daniel, was on the provincial football team and Daniel participated in a baseline test that was only available to elite athletes. Dawn also highlighted a difference in concussion information between a minor football club and high school sports: “The [provincial high school athletic association] doesn’t step in enough at the provincial level to protect the kids or inform the parents.” In Dawn’s experience, she had access to several resources through her experience in minor sports, but as Daniel aged out of minor sports and into high school sports, the communication of concussion education ceased.

Similar to Elizabeth and Dawn, Angela also spoke about her position as volunteer manager and how this made her privy to concussion education sources. Angela said that “through the years being manager of the hockey team, you get sent things from the organization – through Hockey Canada [the governing body for hockey in Canada] and

so I kind of read some stuff on that.” Angela explained that “the hockey organization would have been where I got most of the [concussion] info.” While Angela was provided with information by her son’s sporting organization, she also attributed this communication to her role as a volunteer and not as a parent.

Like sport organizations, health care professionals were also reported to provide inconsistent, scattered information to parents. Parents reported that some concussion information was provided when they took their children to either the hospital or their family physician. However, not all parents found the information to be helpful. Crystal felt that the information provided was lacking and recalled: “I went to the doctor, and I didn’t really find that super helpful. And this was a doctor who specifically deals with like sports injuries or work injuries and trauma to the brain or other things.” Even with some information being provided by doctors during the diagnosis phase, some parents took it upon themselves to seek out concussion information from private health professionals. For example, four of seven parents (Angela, Bryan, Elizabeth, and Greg) sought help from a private physiotherapy clinic that also specialized in concussion recovery (concussion clinic). One of these parents, Angela, reported the concussion clinic to be her primary source of education and recalled that she has “gotten a lot of info from the [concussion clinic] doctor . . . written info . . . so I was reading that.” Elizabeth also experienced the clinic as a primary source of education as the clinic provided her many resources including study results, online resources, and some guidance on how to find information, all in an effort to assist concussion management at home.

While concussion clinics were reported to be a primary resource for some parents, not all parents accessed this type of support. One parent, Felicia, was supplied with

information about the concussion clinic while at the hospital but found them difficult to reach. Felicia explained: “I didn’t know what number I was calling, and it was just hard to set an appointment.” Felicia had also noticed Faith’s symptoms quickly subside and didn’t feel the visit was necessary. She said that “by the time we took her to the hospital [for diagnosis], she was not as shaky, and they said it was just a mild concussion . . . [the doctor] did recommend the concussion clinic. We just didn’t feel it was that severe.”

Similar to Felicia, Dawn was also supplied with contact information for a concussion clinic; however, Dawn was either misunderstood or was misinformed regarding the purpose and value of a concussion clinic. Dawn described having “the impression [that] it was so he could get a note to go back to playing sport and less that it was a checkup kind of thing.” Daniel, however, received his concussion in the final game of his sport season and therefore was not going to return to play anytime soon. Dawn expressed that she was under the impressions that there wouldn’t be any treatment for Daniel because there was no intention to return to sport soon. Dawn further explains that the nurse practitioner who diagnosed Daniel told Dawn to take Daniel to the concussion clinic “once he was better, to go to do this return to play. So, I thought, if he’s better, I don’t really need to go see him.” Of the seven parents, six of them reported to be aware of concussion clinics; however, not all of them were consistently informed of the value of attending one. The last parent, Crystal, did not utilize a concussion clinic and was never referred to one. It is unknown if Crystal was aware of its existence.

“It’s mind boggling”: Experience with Quest for Information

All parents in this study reported searching for information beyond what was supplied to them. Parents’ experiences in their quest for information was a mix between

mind blowing (having plenty of information) or “mind boggling” (not having nearly enough information). Regardless of how much or how little information was found, all parents had to search and sift through internet results to find what they deemed to be relevant and helpful. When asked about her experience searching for concussion information, Elizabeth replied: “I can sum it up in one sentence: thank God for the Internet.” This sentiment was shared by Bryan, Felicia, and Greg who, like Elizabeth, all mentioned Google as a significant information source. Elizabeth remembered that when her son experienced a concussion outside of sport (her first experience as a parent with a concussion) she was tasked with finding out everything on her own. Elizabeth recalled: “I had to google what you’re supposed to do, that’s where I got that [return-to-play protocol] from It was only my googling that got it.” Without that groundwork, she could have missed some important recovery steps when the next concussion occurred. In addition to Google results, Elizabeth recalls using a football site, the Mayo Clinic [an online medical website], and cross referenced any information obtained from a United States source, with a Canadian source to ensure the information applied. Another parent, Angela, also utilized the Internet to locate information from different sports organization websites and medical websites (such as the Lahey Clinic) as her main sources of information.

Not all parents experienced success with their online quest. Crystal, a nutritionist and herbalist, was looking for some unique information on how to treat a concussion and described combing through her library of books that focused on “relating to the human body and how I would apply nutrition and herbs to those specific body systems,” but lamented that it “has been impossible really to find anything on concussions, which has

been frustrating.” The lack of information in her own library influenced Crystal to utilize the Internet to help her find resources that focused on an herbal approach. She was looking for very focused information such as what types of food and activities would best support recovery, and if there were any herbal approaches that would help. While it was difficult to find, Crystal described having found a herbalist website from the United States and another site she couldn’t recall, but remembers it being helpful. Despite finding two websites, Crystal described being disappointed: “I mean I would hope there would be more info available. And I definitely didn’t find that it was.” Also disappointed with her experience, Felicia found the information online to be relatively unhelpful. Felicia explained that “it was just really hard to ask specific questions . . . specifically for a mild concussion. Everything didn’t seem to apply. So, I didn’t really use a lot of info online.”

While Elizabeth was not looking for the same resources as Crystal, she also shared a frustration with her experience in the quest for information. Elizabeth explains that “there simply isn’t a lot of info in the concussion area It’s mind boggling to think how little info is available. And not just not available, but how little info we even know about concussions and long-term damage.” During Ethan’s recovery from a non-sport related concussion, someone had told Elizabeth about a concussion clinic. When she asked the doctor for a referral, the doctor said, “oh you guys don’t need that, you’re fine.” However, after Ethan’s latest soccer concussion, Elizabeth said she “was googling the concussion clinic, and I read you didn’t need a referral and I’m like, ok, yeah, that’s where we are going. Those guys, who spend copious amounts of time studying this, know their stuff.”

Dawn was the only parent who did not search for information on the Internet due to fear. Dawn explains: “I try not to do that when it’s something medical just [be]cause it’s such a rabbit hole. I could be convinced he was dying.” Instead of utilizing the internet, Dawn relied on the parents of other children to provide concussion information. Dawn recalled talking to “all of [Daniel’s] friends’ parents . . . and they’ve kind of told me in their experience – what they did.”

“They were like little mother hens checking on her”:

Experiences with Others in the Recovery Process

Regardless of the parental involvement in the home environment during recovery, a significant portion of recovery occurred outside of the home for these children. At some point during the recovery, children returned to school and, eventually, sport. These two domains, school and sport, proved to be integral environments from which support was needed for recovery. Beyond asking for accommodations with school work and following up with progress, parents were not in control of what occurred at school or in sport; therefore, they had to rely on the “others” (e.g., teachers, school administrators, coaches, health professionals) to assist in the recovery process. The level or type of involvement from these “others” influenced the parents’ experiences of recovery, and the research found that these “others” were either supportive or compromising of the recovery process. This theme is divided into two subthemes, *Experience with Others in the Return to School* and *Experience with Others in the Return to Sport*, which explore the process of reintegration and how the “others” influenced the recovery process.

Searching for Support: Experience with Others in the Return to School

School was the first environment children returned to after the initial days of recovery. As not all children were capable of returning to school with full participation right away, school administrators and teachers became responsible for providing support to the children's return. Most parents asked for support from their children's school and received it. The type of support some parents (Angela, Bryan, Dawn, Crystal, Elizabeth) reported receiving from schools included accommodating alternative learning environments, sending schoolwork home (prior to returning to school), accommodating extended absences, adjusting education expectations, and having an open, ongoing dialogue with parents. Alternatively, some parents (Elizabeth and Greg) found their children's school to be unsupportive in recovery and even compromised the recovery process through actions that included ignoring accommodation requests, expecting a higher standard of performance, and even believing a child to be falsifying her/his condition. Finally, one parent (Felicia) reported receiving no support services at all. These support types (or lack thereof) significantly influenced the parents' experience with their child's concussion recovery.

Most parents felt supported by their children's school during the recovery, which resulted in having a positive influence on the recovery experience. Angela expressed that her son Alex's school was very supportive. Angela shared that the school did not pressure Alex to finish assignments or write exams. She further expressed that had he been pressured to do so "that would have brought in a whole different issue into this. But the school was completely supportive. And they were like no no, he has to heal."

Another parent who received support from his child's school was Bryan, whose daughter Brianna was able to gradually return to school and school activities. Bryan was impressed with how accommodating the school was and how "she had a couple tests where she'd be secluded. She'd be put into a room to do the test on her own and have more time, additional time to do the test." Like Brianna, Daniel also felt the helping hands of his school as he received accommodations despite his mother Dawn not requesting support. Dawn speculates that "the school must have advised his teachers [about the concussion] . . . because he did go [to school] and they accommodated him just by letting him doing his classes in unlit rooms . . . they let him skip his music class because of the noise." One parent, Crystal, is currently searching for support from her son's school because at the time of the interview, Crystal's son Caleb was missing a lot of school due to prolonged, ongoing recovery. Crystal was in constant communication with the principal. Caleb was doing well in his recovery and was able to complete the work that was sent home, but then he was reinjured and was unable to complete any work. Crystal explains the ongoing struggle:

I'm just working with the principal to make sure that he can still, you know, graduate or pass grade eleven. But we definitely have to make a lot of accommodations because . . . the bright lights also affect him, so he finds it hard to be in the classrooms all day.

Elizabeth was the only parent to report having had a mixed experience with her child's school. Elizabeth experienced Ethan's school to be either supportive or unsupportive which differed according to which staff or faculty member was interacting with Ethan. If Ethan was not feeling well, he could take a nap in the office, and the

school would inform Elizabeth that they were monitoring his condition. Ethan was given extensions and was able to leave class if it got too loud. Ethan would even skip class if there was a supply/substitute teacher. Elizabeth remembered: “If they were having a supply teacher one day, he may not go to that class because we knew it [the noise] would be out of control.” The administration was very accommodating, but the teachers who knew Ethan to be disruptive were not. Elizabeth explains: “I think because they saw him day in and day out, were just like, ‘for God’s sake, here comes that Ethan kid with another excuse for his behaviour.’” However, Elizabeth said that teachers who had experience with their own concussed children were well informed. Overall Elizabeth described school support as “a crap shoot whether you could find someone who would agree with you or not.” Ultimately Elizabeth’s experience was overall very unhelpful as it was hard to predict how much support, if any, Ethan would receive each day.

Greg was the only parent to report having only had negative experiences with his child’s school. While Gavin was absent, the school did send home his work, but upon his return, Gavin was required to participate in full despite Greg asking for accommodations. Greg remembers that he “had specifically told them that [Gavin] was going through a lot and he could not do any physical education at that time.” However, when Gavin “went to a gym class . . . they made him anyway. So we gave them shit, of course.” Greg remembered that Gavin complained that his physical education teacher was typically hard on him. This lack of support and the expectations put on Gavin by his school left Greg very angry. Greg expected that the letter he wrote, excusing Gavin from physical education, would be respected rather than ignored.

Felicia recalled not asking for accommodations from the school and so was the only parent to report not receiving any support for Faith at school. Felicia explained:

We didn't ask for any . . . She had to study. She had no choice. And I mean you can't not write your exams. So it was more frustrating because I was worried, you know, do I call the school and pull her from school and pull her from her exams? I didn't know what to do. We just basically, we let her study and said you know, if it's bothering you, you have to stop.

It is unclear if Faith's school was aware Faith had suffered a concussion, and it appears that Felicia did not feel she could ask for support. This lack of understanding and support left Felicia wishing she had done more to advocate for her child and actively seek support. Felicia said: "If I could change it, I think I would probably maybe have contacted the school and asked for her exams to be off by two days, or you know . . . just to give her the extra time."

“He'd say one thing, but yet they were telling us another”: Experiences with Others in the Return to Sport

The experience of returning to sport differed from returning to school. Unlike sport, returning to school, with the exception of physical education, did not present the physical risk of exerting one's body that is associated with sport; therefore, the support their child needed was different. The types of support parents and their children needed to return to sport included support from health professionals and coaches. Parents relied on health professionals and coaches not only to ensure a safe, gradual return to sport, but also to influence parents' decisions on when or if that return would occur. Furthermore, health professionals were utilized for parental reinforcement and provided a “reality

check” for children. With the exception of Dawn, all parents utilized some form of a health professional to help to navigate the recovery process. These professionals included physiotherapists, family doctors, a child psychologist, a chiropractor, and an optometrist. Parents most commonly relied on physiotherapists who provided specialized concussion recovery support from a recognized clinic.

For those who attended a private clinic, offering concussion rehabilitation services, the experience was positive. These clinics not only offered rehabilitation strategies and protocols, but also offered concussion education to the children. Angela had daily communication with her child’s clinician to ensure they were taking the right steps and the clinic was up to date on Alex’s progress at home. Angela remembered:

Every day I would email him a summary, and he would email me back . . . “Okay, yeah, keep doing that” or you know, seeing that you’re on the right track, “We can start [the return to play protocol] once he’s been able to go back to school for a little bit.” And then once he was back to school for full days, then we were able to start the back to sport protocol.

Another parent, Bryan, found that the clinician was instrumental to influencing Bryan’s sport participation decisions. Bryan said that the clinician “informed us that [the concussion] was pretty bad as far as the symptoms she was having and maybe we should look at making this decision of do we want her to continue to play contact sports.” This influenced Bryan to pull Brianna out of ringette. Bryan said that two months after removing her from ringette “she was still having symptoms, just sitting down at the table doing her math homework and huge headaches. She was crying from it, so we knew we made the right decision.”

For Elizabeth, the clinic helped reinforce the messages Elizabeth was giving Ethan related to recovery and also provided information to Ethan that Elizabeth could not. Elizabeth explained: “They confirmed a lot of things that we suspected. But they also gave Ethan info on what to do when it happens. Like it was almost like an education piece for him beyond what I could tell him.” Another parent, Greg, utilized the concussion clinic to reinforce the restrictions placed on Gavin. Greg described Gavin as resistant to following protocols and anxious to return to playing. Greg knew he was not ready, the physiotherapist helped reinforce that. Greg explained:

We kept telling him, “You’re not getting back on the ice until you are officially cleared and go through the protocol.” So one day he’d think he was there [recovered], he’d go to [Physiotherapy clinic]. He’d come out, “No” because he didn’t pass the test.

For Greg, the clinic was a supportive resource in communicating to Gavin the importance of recovery protocol, especially given that Gavin was resistant to that protocol. The clinic provided Gavin a reality check. Greg explains: “We kept [going to the physiotherapy clinic] . . . so he could see when he was doing the test there, he wasn’t actually as good as he thought he was He’d say one thing, but yet they were telling us another.”

Some parents opted to use other types of health professional resources. Bryan, who attended the concussion clinic, also sought the assistance of a child psychologist to help Brianna navigate life after being removed from ringette – a sport that was central to her life. Bryan explains that Brianna “went to see a psychologist and throughout the process it was pretty clear she wanted to come back to the sport.” Bryan, who had removed Brianna from sport based on her symptoms and the physiotherapist’s

recommendation, decided to allow Brianna to return to sport because of “the psychologist’s recommendation that she felt Brianna was ready or was possibly ready [to return to sport] with what she was seeing during her sessions.” This was supported by Brianna’s physiotherapists, who “reported it as if she’s never had any concussions. She’s fully recovered from what they can tell.” This gave Bryan the confidence to support Brianna in returning to sport.

Crystal’s most trusted resource in supporting Caleb’s return to sport was a chiropractor who was monitoring Caleb’s ongoing recovery. After Caleb’s latest reinjury “the chiropractor said he was back to being in the original state . . . we are still having to go to the chiropractor all the time.” The opinion of the chiropractor held a lot of weight in Crystal’s mind. When asked about returning to sport after recovery, Crystal said she would support Caleb in playing “unless he [the chiropractor] feels, like even though he may not be experiencing symptoms, it’s probably not a good idea for him to go back.”

Another parent, Felicia, also utilized different health professionals when Faith began to experience headaches after recovering. Felicia took her to an optometrist because Faith “was having headaches every day . . . So we had her eyes checked at the eye doctor, and they were fine.” After having no luck with the optometrist, Felicia took her to see a physiotherapist who had some trouble diagnosing Faith. Felicia explained:

Physio, at first, thought it was a strain stemming up from [Faith’s] middle back and into her neck in the side of her, which could have been causing the headaches. But then, after a couple weeks in physio, [the physiotherapist] realized it had something to do with [Faith’s] eyes. And called it a post-concussion (post-concussion syndrome).

After the physiotherapist confirmed that the movement of Faith's eyes was causing her to experience headaches, the physiotherapist gave Faith "this little exercise on her phone, where she follows a ladybug on her phone. And now she's not having the headaches."

It is evident that health professionals were not only there to educate parents, and their children, and guide concussion recovery, but health professionals were also utilized as parental support in reinforcing protocols and providing a "reality check" to children like Gavin who tried to return to sporting activities before he was ready. Finally, health professionals were a determining factor for some parents in deciding to allow a return to sport. Bryan, Greg, and Crystal put a lot of value into the opinions of the health professionals who were consulted to ensure their children did not go back to sport too soon. Parents felt reassured by the health professionals who were providing support to their children. This relationship, between parents and health professionals, was influential for parents making difficult decisions surrounding continuing sport participation.

The other main source of support for the returning to sport phase of recovery was the coaches. While parents experienced health professionals to be educators and healers, parents experienced that coaches were understanding allies who were patient during and following recovery. All parents, who were considering supporting their children's return to sport, found coaches to be supportive during recovery. As mentioned previously, Bryan decided to pull Brianna from ringette after her concussion. This decision was met with criticism from other parents with suggestions that "we were ruining her life." In contrast, Bryan experienced the coaches as supportive and understanding of the decisions that were made related to Brianna's participation. Greg also had a very positive experience with his son's coaches. Gavin's coaches were aware he was seeing a

concussion specialist and supported that process. Greg remembered that the coaches were not going to let Gavin play until he was cleared by the specialist. Greg trusted that Gavin's coaches took the recovery very seriously and were not going to compromise his recovery. When Gavin did receive clearance to play, the coaches brought him back gradually. Greg said: "We knew he wasn't going to be going back and playing one hundred percent of the ice time that he was getting before. But the coach was like 'we'll take it easy on him.'"

The influence coaches had on Felicia's daughter Faith was more in depth than other parents reported. Faith's rugby coaches claimed to be concussion-trained and one of them was also a paramedic. The competencies the coaches were perceived to have influenced Felicia to allow them to guide and monitor the recovery process. Felicia remembered that "they were like little mother hens checking on her. I really, really trust that they know what they are doing." The coaches told Faith what she could and could not do, and determined when Faith would be able to return to play and Faith would tell her mom. Felicia explained:

So when she goes to practices, even though she's not allowed to practice, they will tell her when she can practice, and I just assume that they knew because they told us right from the start that they are concussion trained, that they won't let our kids play. There are certain time frames that they follow. So I really trusted it. And then Faith would be like, "Not this week, but next week, I'm going to be allowed to throw the ball, but I'm not allowed to run." And then she would say, "Okay, I'm allowed to run next week, but I'm not allowed contact." So her team and her coaches really were following her.

Dawn's experience with coach involvement differed from other parents' experiences mostly because Daniel's concussion occurred during the last game of the season and Daniel was not planning on participating in sport for several months. Unlike the previous parents, Dawn felt that the coaches had played no role in the concussion follow-up process. Dawn said: "When it was finally diagnosed, I said [to Daniel], 'Should you mention it to your coaches?' [And Daniel said], 'they don't keep track of that kind of thing.'" Dawn shared that it "kind of worried me at the end to know that the coaches don't pay any attention to the concussions. They have a team physiotherapist that watches them when they come off the field and that's it." Despite the lack of direct coach involvement during Daniel's recovery, Daniel's team did have a physiotherapist. The physiotherapist would have become responsible (from a team perspective) for Daniel's recovery had the season not been completed. However, it is difficult and unfair to predict the type of coach involvement that Dawn would have noticed during recovery had the concussion occurred prior to the final game.

While Felicia experienced Faith's coaches to provide the same support health professionals provided other parents, it is clear that, for the most part, coaches had a different role. Coaches were not expected to be experts in concussion recovery, but they were experienced to be trusted allies who supported the recovery process as directed by experts. This helped parents determine the safest way and time to return to sport. Gavin's coaches were not going to push Gavin too hard and were very aware of his progress in physiotherapy ensuring they were acting in a complementary way to that process. Faith's coaches controlled and monitored every aspect of recovery and this assured Felicia that

Faith was not being rushed back into sport. Finally, Brianna's coaches did not make Bryan feel bad for removing her from sport but understood and supported that decision.

“He had no problem following the protocol”:

Managing Child's Experiences with Recovery

The concussion recovery protocol, in all cases, required the athletes to avoid certain activities that were part of their day-to-day life. This included not playing sport, which was more of an issue for some of the children than others depending on where they were in their respective sport season. For most, attending school or work was another activity that was altered, and was also dependent on the time within the school year. Other activities were also restricted such as playing video games or being on phones or tablets. Furthermore, rest was more important than usual and took the place of normal daily activities. Parents' roles included monitoring their children's recovery and supporting their children in managing the recovery process. Parents' experiences with those roles were influenced by a number of factors, including how parents chose to respond, how their child felt, their child's ability and willingness to self-regulate and follow protocols, and the extent to which their child's sport participation was affected.

It was evident that many parents had a desire to enforce basic recovery protocols. At the onset of recovery, enforcing protocols was an exhausting task that required more parental supervision than normal. For example, Angela explained: “I was extremely strict with him about not doing anything because I figured the longer he rested it, the better it would be. And maybe it would help him recover sooner.” For Dawn, “The phone was my primary concern with him – to keep his contacts out of his eyes and keep him off the screen.” Another parent, Elizabeth, felt the first 48 hours were the most important and

advised that “you gotta take it really seriously . . . take their phones away, do whatever you have to, you know, whatever you’re allowed to do, that’s it.” In Felicia’s first experience supporting her daughter through a concussion, she placed an emphasis on following the protocols. Felicia described:

We followed the rules . . . we went to complete darkness, get off your phone, and just rest . . . we just tried to keep the lights as low as we could, we kept the house as quiet as we could . . . we wouldn’t let her sister turn her music on . . . We didn’t let her go back to work until the next weekend.

The strict adherence to these protocols took the effort of the entire household to ensure Faith was accommodated. This resulted in what Felicia remembered to be a quick and successful recovery experience for Faith.

Greg, on the other hand, found himself fighting a battle he could not win on his own. Greg expressed frustration when he found Gavin was ignoring recovery protocols. Greg said: “He would never listen. We’d tell him . . . you gotta rest, you gotta be [at home] . . . no tv . . . but he wouldn’t listen. He’d be out on his four-wheeler or skidoo.” This led Greg to utilize the concussion specialist as a method of communicating to Gavin the reality of his recovery status, and the problem with ignoring protocol.

While some parents found themselves enforcing restrictions, monitoring adherence, or fighting with disobedience, other parents found their children to naturally react positively to restrictions based on their own physical or mental state of health. Parents were then able to recognize that children who respected restrictions without fight were not feeling well. For example, Dawn explained:

It was not a huge fight for me to make him stay off [his phone], which is how I knew [he was not feeling well] because if he was feeling half way good, he'd have fought me tooth and nail to get on the phone.

Similarly, Angela spoke about how simple it was to get Alex to follow the recovery protocol: "I think he understood, and he wasn't feeling great. Right? So if he had been feeling fine, he would have put up a fuss, but he wasn't feeling good, so he didn't argue with it." Another parent, Elizabeth was surprised that her son, Ethan, followed the recovery instructions because normally, "everything is a bloody battle with him." Finally, Felicia recognized her daughter's response to symptoms and said that Faith "knew her body and she would just stop studying and lay down if she got tired . . . When she was feeling better, she could actually walk herself up to her appointments." The experience for these parents was mainly to monitor that the recovery protocols were being observed as their children seemed to respond positively to the requirements for recovery and, when behaviour changed, so did their physical or mental health.

For other parents, their children's experience with recovery warranted more concern and action. Bryan's daughter, who was out of sport for a three-year span, struggled with the loss of sport while recovering, and Bryan's attention was devoted to more than monitoring that Brianna was following the recovery protocol. He explained his daughter became depressed and responded to being taken out of sport "as if we took everything away from her." One of the actions he took was to have her see a psychologist to work through the loss she was experiencing as she recovered. Furthermore, to help Brianna cope with the loss of her sport, Bryan supported her in filling the void sport left with many different activities. Bryan explained:

She tried violin . . . She wanted to try theater class. So we just tried different aspects. Trying to find sports. She wasn't interested in just single player sports, like badminton, tennis. She likes the team aspect of it. She tried ultimate frisbee. That was still a team aspect, but no physical contact. And again, it's not challenging, so she didn't like it. So her options were wide open, we would have done anything just to see her get interested in another hobby or another sport.

Bryan's experience with managing Brianna's recovery involved supporting her in a trial and error process as she explored a wide variety of leisure pursuits that could meet her needs.

Crystal also noticed a psychological shift in her son Caleb. Crystal described that Caleb is "definitely different, like his mood and his personality have changed a little bit . . . Like he angers really quickly." Crystal also had to manage Caleb's struggle with the loss of sport. When Caleb's friends were trying out for the new hockey season, Crystal found that during that time he was depressed. Caleb was declaring he was going to play despite his mom being very clear he could not. Of course, without Crystal's support, he would not be able to register. Aside from managing the loss of sport, Crystal was also faced with managing recovery setbacks that prolonged the recovery process. Caleb faced continued obstacles to recovery as he was prone to injury. His continued head injuries, unrelated to sport, extended the day-to-day support required, which included regular visits to the chiropractor. To help Caleb cope with his extended absence from sport, Crystal was compelled to accommodate her son despite the burden it placed on her. Crystal explained: "If he wants to go to a friend's house, and I don't really want to drive

him, I will drive him anyway.” Crystal also brings Caleb to his friends’ games so he can socialize with his friends.

Similar to Caleb, Felicia also had to manage recovery setbacks with her daughter. Faith experienced a recovery setback when she was diagnosed with post-concussion syndrome. During Faith’s first concussion experience, her school schedule allowed her to take the proper time to rest and recover, but during her second recovery experience, Faith was facing important looming final exams in school. Felicia chose to manage Faith’s school commitments using a strategy that excluded requesting for school accommodations. Instead, Faith “studied in smaller amounts and she stayed off her phone in between her studying.” The strategy appeared to work although not as well as the recovery with the first concussion. Faith’s recovery for her first concussion lasted only a week while her most recent concussion saw recovery complete in a little over a month. The diagnosis of post-concussion syndrome left Felicia feeling like she had not done enough. As Felicia reflected on her experience managing Faith’s recovery the second time, she expressed some regret saying: “If I could change it, I think I would . . . have contacted the school and asked for her exams to be [rescheduled].” Felicia believes that it was the decision of prioritizing schoolwork over recovery that led to the diagnosis of post-concussion syndrome, ultimately feeling that “I didn’t shut her down long enough.”

There was one parent, Dawn, whose experience has been most unlike any other parent. For Dawn, the experience of concussion recovery was simple as Daniel was in charge of his own recovery. Dawn was aware of the high risk and even likelihood of Daniel being injured because “as a parent, you know there’s a good shot [when playing football] that something’s going to be broken or there’s going to be a concussion.” At

home, after diagnosis, Dawn turned over the responsibility of recovery to Daniel and Dawn said she would “just let him heal in his own way . . . He went through the process and was responsible for his own recovery, I guess.” While she mentioned it was important to keep him off his phone, Daniel managed to do this without needing parental intervention. Dawn explained, “he’s always kind of forged his own path and I’m kind of along for the ride . . . It’s kind of my parenting style in general, not just with the sport.” Dawn’s response to Daniel’s concussion reflected a few factors. First, Daniel’s season was over and he would not be returning to sport for a while. Second, Daniel was responsive to the recovery protocol and was able to self-regulate his recovery like other children were able to, and third, Dawn’s natural parenting style was to give Daniel the freedom to care for himself. Had Daniel’s recovery been more difficult, or had his concussion occurred earlier in the season, Dawn may have responded differently because even though “he’s responsible for his own school work . . . his job, and everything, I’m here when he screws it up, or if he needs it.”

“Not letting him play – it is almost worse than letting him get hurt by playing it”:

Parents’ Experiences with Valuing Sport While Assessing Risk of Playing

The value parents placed on sport was a critical component of their experience with their children being concussed. Sport, for these youth, was not simply a recreational activity, but was a serious leisure pursuit from which each youth derived parts of her/his identity. As demonstrated by Brianna, sport served as a way of life and was not easily replaced or substituted during recovery or prolonged sport absence. Each parent was able to identify the purpose and value of sport in their child’s life. For some parents (Felicia, Bryan, and Greg), the sport participation of their children was an important aspect of their

own lives, resulting in parents also being confronted with the personal loss of sport. Other parents simply valued the role sport played in their children's lives.

Because the children had been concussed, continuing to participate in sport posed both physical and mental health risks. Parents were confronted with the reality of assessing the risk of playing, then trying to weigh the value of sport with the risk of participation. Parents then made informed decisions that have been influenced by the knowledge they had of concussions, the experience they had with their children's recovery, and the value they and their children placed on sport. This theme has been divided into three subthemes. The first, *"Rugby changed her life": Parents Recognizing the Value of Sport in their Children's Lives*, reports the value parents assigned to sport in their child's life. The second, *"It's actually something we have bonded over since he started playing": Parents' Experiences with Connecting to their Children's Sport*, reports the relationship parents had with their child's sport and how parents were affected within that relationship through their child's recovery. The last, *"I was on the fence about if I made the right decision or not": Parents Torn as they Evaluate the Risk and Reward of Sport Participation*, reports the process of parents considering their child's future participation while comparing the risks of both participation and removal of sport with the reward of participation and removal of sport.

"Rugby changed her life": Parent's Recognizing the Value of Sport in Their Children's Lives

All parents had a clear sense of the value sport had in the lives of their children. Parents described the sport that their children were required to take a break from while recovering from their concussion as something they were "hooked on" (Felicia), that had

become “her love of life” (Bryan), a “need” (Angela), and even as “an obsession” (Crystal). While Ethan was not motivated to do things like clean his room, Elizabeth noticed a shift in motivation when it came to sport. Elizabeth said: “When it’s time for practice, he’s out the door pretty quick.” It was clear to parents that sport was central in their children’s lives.

The identities of some youth were closely tied to the sports they played. Brianna, who seemed to experience the most trauma with her concussion experience, had developed an identity associated with being a ringette player since she was five years old. Bryan stated: “She was attached to the team. She was attached to the sport – the whole social aspect of it.” Being removed from ringette took its toll on Brianna. As Bryan stated: “She lost those friendships she made at the sport. She almost became anti-social where she’d just stay in her room.” This dramatic change in Brianna’s life made it difficult for her to find an alternative leisure activity. With Bryan’s support, Brianna tried many other pursuits including music, drama, individual sport, and non-contact team sport, but nothing filled the void left by her inability to play ringette. Brianna’s desire to play was never lost on Bryan and it was clear she wanted to go back in. Gavin also struggled with the loss of hockey in his life causing him to push his recovery process quicker than he was actually recovering. Greg explained:

All Gavin could think about was getting back on the ice . . . The whole time he was determined to be back the next day, the next day, the next day . . . we kept telling him you’re not getting back on the ice until you are officially cleared and go through the protocol.

For Daniel, “football is everything” and Dawn worried that Daniel’s commitment to football meant “he doesn’t always have the best judgment when it comes to . . . that third concussion, which is 3 strikes and you’re out, if he gets it, he would try to suppress it and go on.”

Beyond recognizing their children’s emotional connection to sport, parents also recognized and valued the benefits or positive outcomes associated with sport. Parents viewed their children’s participation in sport as an opportunity to be physically active, develop a social network, learn to be a part of a team, and be engaged in an activity that was a productive use of their time. Angela articulated this well: “I think it’s great to be on teams for him. I think it’s good for him to be active . . . it keeps him out of trouble . . . [neither] him or his close friends are interested in drinking or drugs because of sports.” Greg also made the point that Gavin being on a team was a positive experience – that he learned to have his teammates back and that they have his.

For some parents, the value of sport was assessed even before their children’s participation began. For example, Elizabeth was very clear about the value of sport promoting physical activity. Having Ethan become physically active was Elizabeth’s initial motivation for engaging him in sport. When considering the possibility of Ethan quitting his sports, Elizabeth said: “I would be encouraging him to do something else, whether it was joining a gym or something to stay physically active. Which is why we put them in sports in the first place. Was for life long physical activeness.” Like Elizabeth, Dawn also saw value of physical activity through sport. Dawn remembers that “when Daniel started playing football, he was a chubby little kid. They stuck him at [offensive line] because he couldn’t move very well.” Daniel has since set his eyes on

becoming a personal trainer and now “he’s in good shape and it’s because he does, everything he does, to play football.” Similar to Elizabeth and Dawn, Felicia emphasized the importance of physical activity and described her family as overweight. Through Faith’s participation in rugby “she had a big transformation . . . it was nice to see her meet her weight goals she wanted and still strengthen herself.” Felicia further explains that in order for Faith to stay in shape and compete at a high level she needs to keep her body and mind active and training helps her do that. Beyond the physical benefit of sport participation, Felicia also noticed an improvement in her daughter’s mental health. Felicia says that “rugby changed [Faith’s] life. It changed her. She struggles with anxiety and depression and working out to play rugby helps that and it encourages her not stay in her room.” This physical activity and commitment to sport plays a significant role in managing mental health. Felicia said: “I couldn’t imagine dealing with her anxiety and depression and her not having a sport and a passion and a team and goals, like it really helps in everything [and gives] her confidence.”

Unlike all other parents, Crystal does not like her child’s sport and is not enthralled with Caleb’s participation in hockey. During the time of his interview Caleb was in active long-term recovery and unable to participate in sport. Caleb’s lack of participation did not bother Crystal as Crystal doesn’t like hockey. Crystal explained: “I don’t want any hockey, it’s kind of the worst sport. I’m not that upset that he’s not out there playing it and getting hurt again.” While she enjoyed watching her son play, she did not enjoy playing the role of a hockey parent. Crystal said: “I did like watching Caleb play hockey, but sitting in the rink during practices or driving all over the place because you know some of the games, we had to go like 2-3 hours away.” The cold and travel

were not the only aspects of hockey Crystal was not missing. Crystal also didn't like the parental social aspect of hockey, specifically Crystal doesn't miss "the hockey parents." Despite not liking hockey, and not liking Caleb's participation in hockey and what it means to be a hockey parent, Crystal saw the value of hockey in Caleb's life. Crystal said: "He made really good friends and it was a source of happiness and exercise for him." Even though Crystal wants nothing to do with hockey, she knows Caleb does. Crystal shared: "I mean really I don't want him to play hockey ever again. But that would break his little heart."

"It's actually something we have bonded over since he started playing": Parents' Experiences with Connecting to Their Children's Sport

Youth were not alone in the connection they felt with sport. Some parents shared their own connection to the sports their child played, and those sports had meaning in their own lives. Therefore, the loss of sport for children also resulted in a loss of sport for parents. Just like Faith, Felicia was hooked on the sport of rugby. Felicia shared: "I mean we love watching it. It's the best sport ever . . . we love rugby we love it. I almost feel bad for how much I like it [despite my child] getting injured." Without Faith's participation in rugby, the opportunity for Felicia to spectate the sport is diminished. Greg also spoke about watching Gavin on the ice: "Watching him play. That's what I'm missing . . . Watching him be himself, be goofy around the other kids . . . Just the whole hockey life . . . I'm heartbroken . . . and I do want him to play." The absence of hockey from Gavin's life was difficult for Greg to accept and resulted in a loss of sport in Greg's life as well. Greg said: "I was upset that he might not be able to play because I enjoy

watching him play.” When asked about the scenario where Gavin is ready to return to the sport, Greg replied: “I’ll be dancing!”

For Bryan, the social aspect of sport as a parent was very important. Brianna’s participation in sport resulted in a social sphere for Bryan that without ringette did not exist. Bryan recalled: “We had a group of parents that we were close with, that we were actually pretty good friends with.” When Brianna was removed from sport, Bryan lost the social aspect that the community and culture that sport provided the parents of athletes. For Dawn, Daniel’s football participation resulted in an opportunity to grow the mother/son relationship. Dawn said: “It’s actually something we have bonded over since he started playing. I know a lot more about football now than I did when he started playing. He teaches me a lot of the game.”

“I was on the fence about if I made the right decision or not”: Parents Torn as They Evaluate the Risk and Reward of Sport Participation

Despite all of the close connections children and their parents have with sport, and the understood values or positive outcomes of sport, sport still posed a risk for their concussed children. Parents were confronted with this risk and found themselves torn with how to move forward following recovery. The parents in this study identified that their biggest concern was the potential effects of another concussion. As reported by parents, subsequent concussions could result in long-term physical consequences or death and/or a diminished quality of life associated with the loss of sport.

Angela shared her conflicting thoughts and feelings as she examined Alex’s future and the potential of receiving another concussion: “It’s your kid’s brain . . . he’s

got the rest of his life . . . [I am a] little worried that once you have one, sometimes they say it's easier to get another one." Despite this fear, Angela does not "think that when you weigh the risk of [Alex] having another physical injury, [that it] would outweigh the emotional damage that I would do to him if I cut him off all sport." Ultimately, Angela is torn as she does not want "to screw up his whole life, [because of] playing sports. He's a smart kid, he's going to do something in life." Like Angela, Crystal was also concerned about what happens if "[Caleb] hits his head one more time. What's going to happen then? Will this affect his education? His future getting a job?" Another parent, Bryan, was also deeply concerned with the long-term consequences of concussions, which include long-term disability and disease. Bryan wondered "if [Brianna would] be able to come back to a full 100%." He hopes she "wouldn't have any learning disability because of [the concussion] or memory loss." Bryan is aware of the risk of keeping Brianna in sport and he anticipates that if she had another concussion, he fears she would hide it.

Another parent, Felicia, also was aware of youth who had died as a result of sport-related concussions and worried that Faith could encounter a very serious collision. In thinking of athletes who have died as a result, Felicia indicated, "it's scary that you could be sitting on a bench one minute just sitting out the game and then gone the next." Like other parents though, Felicia was torn with the decision to pull Faith from sport. Felicia "couldn't imagine dealing with [Faith's] anxiety and depression and [Faith] not having a sport and a passion and a team and goals." Felicia was weighing the risk with the awareness that sport is a very positive aspect of Faith's life that have significant benefits.

One parent, Greg, feels he may have already begun to associate changes he has seen in his son Gavin with potential evidence of long-term concussive effects. When

Gavin decided to take a year off hockey, Greg was surprised and was concerned about “the effect [a concussion] was going to have on him . . . Like how does this affect him? Cause it’s not like him to back down from anything.” Unlike the previous parents, Elizabeth has had a fairly simple experience with Ethan’s recovery giving her a sense of security in his future participation. Elizabeth explained: “We have a situation where he gets a concussion and he is able to recover from it.” However, Elizabeth is worried their luck may run out and asks: “Is there going to be long term damage? At some point, like are we not going to be so lucky as to get through this?”

Balancing the potential loss of sport and the associated outcomes (e.g., loss of identity, limited child happiness, loss of social life) with the potential risk of reinjury and the outcomes associated with that (e.g., death, lower quality of life, diminished career potential, weakened academic performance) became the main struggle of parents as they moved forward with the opportunity to return to sport. Angela was torn with what to do, as she faced the fear of ruining her son’s future (physically) and the fear of making Alex miserable for removing him. Angela shared: “Well, he’s back playing hockey. I couldn’t take that away from him.” Like Angela, Bryan was also torn as he not only faced the loss of Brianna’s participation, but also the loss of her social life, making the decision even more difficult. Bryan shared:

It was probably one of the toughest decisions I had to make. Because I had multiple points, I was contemplating letting her play again. This was that tough for her . . . I was on the fence about if I made the right decision or not. Multiple times when I’d see her at her downest point, that’s when I was contemplating letting her play again. My spouse and I, we talk about it and it was like, “no, we

made this decision, we gotta see it through.” . . . We knew we made the right decision, but seeing her almost, like she was borderline depressive, like, I don’t know which was the worse of the two.

After a three-year break from sport, Brianna has returned to both soccer and ringette at the recommendation of the psychologist.

One parent, Crystal, did not feel torn about what she wanted, but was torn about what she wanted for her son. Crystal did not want Caleb to ever return to hockey, but was worried about the emotional toll that would have on him. As Crystal discussed the future, she contemplated his potential return to sport:

If he was adamant about it then . . . I don’t know. He would have to play house hockey [recreational hockey] and just see how things went, but if he had any symptoms at all after playing, he would have to call it quits.

Another parent, Dawn, was mostly concerned about Daniel’s ability to make a smart decision around his future participation. Daniel received his concussion on the last game of his season and therefore has not returned, but he has expressed a desire to return and to even begin playing rugby. Dawn expressed her objection to this, but also knows he will (as he always has) make his own decision, and she is there to support him.

Some parents were not so torn with the decision to support their child’s return to sport; however, they still acknowledged the fears they had of further injury. For example, Felicia, who mentioned a fear of death and a fear of the emotional effects of leaving sport, wants Faith to continue to play and live an active and fun lifestyle. Faith was injured near the end of her rugby season and decided to take the summer off. Since then she has returned to sport by starting football last fall and has rugby season coming up.

Another parent, Greg, was mostly concerned with Gavin's hockey career ending. Gavin has since decided to take an extended leave from hockey and Greg is adjusting to the potential of Gavin never returning to hockey: Greg feels: "There is [a] no-win situation here . . . if he decides not to, it's one hundred percent his decision and I'll be heartbroken that we don't get to go to the rink anymore because my other son doesn't play hockey." Finally, Elizabeth, was worried that at some point these injuries were going to be more severe; however, she also wants and supports Ethan to play. Since the recovery, Ethan has returned to both football and soccer. He has returned to his position as a net-minder after a year and a half break, but "he's definitely more aware of what can happen from a head hit. So, he's less inclined to hit the ball with his head than he used to be."

Uncomfortably Satisfied:

Parents' Experiences with Their Response and Decisions During Recovery

Parents spoke of the satisfaction they had with their choices regarding sport participation during and following recovery and decisions within recovery itself. The satisfaction parents had with their choices or actions throughout recovery was conflicted. While all parents reported being satisfied with their decisions, most of them also reported fear about those decisions. Five of seven parents (Angela, Bryan, Dawn, Elizabeth, Felicia) have supported their child's return to their respective sport. One parent (Greg) has been faced with the reality of supporting their child's decision to leave sport (at least for now), and the last parent (Crystal) has a child still in active recovery. The outcomes of these decisions have yet to be determined and the satisfaction with these decisions is not easily assessed. Parents were asked about their satisfaction with not only their participation decisions, but also their actions throughout the process.

Two of the parents, Angela and Elizabeth, expressed complete satisfaction. Angela is satisfied with her role in the recovery. Angela said: "I think we've done a good job. I'm satisfied with what we've done. Yeah, I have no regrets with anything I did during his recovery." Regarding Alex's return to sport Angela reports that she is "completely satisfied. He's happy. He's having fun. He's hanging out with his friends. He's completely happy. So that makes us happy." However, Angela recognized things may still change: "I think if he got injured again. That would be really the only thing." Elizabeth also expressed a similar level of satisfaction. When asked about her satisfaction with supporting Ethan's return to sport, she replied: "Yes. I am satisfied with that. Because I think until he says 'I can't do this anymore, I'm tired of being in the hospital, I'm tired of being hurt', that I don't see the need for that." Elizabeth believes "you can either let your injuries define you or you can get past them and make the decision based on the big picture of what you want to do?" Like Angela, Elizabeth also sees the potential for things to change. When asked if another concussion would change things, she said that it "depend[s] on how serious it was . . . in terms of the level of impairment or long-term damage he would have." Despite both Angela and Elizabeth having complete satisfaction, they both recognize the looming potential of a worse situation.

All of the other parents mentioned conflicting feelings of satisfaction. One parent, Bryan, expressed being very confused during the whole recovery process. Despite feeling his decision was right to remove Brianna from sport, he often felt he needed to reconsider based on Brianna's reaction to being removed. Ultimately supporting her return, Bryan was comforted by the fact that the doctors said she was healed, and the psychologist recommended her return. When asked how he feels about her current participation, he

replied: “It’s still scary.” Another parent, Dawn, said she has “never really been satisfied with my ability to support him.” She has reported multiple times that Daniel makes his own decisions and she is there to support him and help him when he needs it. Despite this lack of satisfaction, Dawn still reports to being satisfied with her decision to support Daniel’s participation in football.

One parent, Greg, was battling an internal conflict of being unsatisfied with parts of recovery, satisfied with others, and confused with his own desires verse the choices of Gavin. Greg explains:

I think I could have done more . . . wish I had known more or paid attention . . . I could have been more stricter with him . . . There’s no if, ands or buts . . . If I had been stricter and strapped him to his bed, turned out the lights, you know what I mean?

Greg’s dissatisfaction was most reflective of Gavin’s refusal to follow concussion protocol. One thing Greg was completely satisfied with was the decision to utilize the concussion clinic. Greg admitted that “it was the smartest thing his mother decided to do.” One thing that is very clear about Greg is his willingness and commitment to support Gavin. Greg said: “If [Gavin] decides not to play hockey again, then that will one hundred percent be his decision.” That support extends to ignoring the recommendation of doctors, who have advised Gavin to quit hockey. Greg says: “It’s whatever [Gavin] decides.” Despite this commitment to support Gavin in anything, Greg experiences confusion because of his own desires, ultimately leaving Greg unsatisfied. Greg expands:

I'm sad that he's not playing. I'd rather be at the rink watching him play . . . I can't say satisfied that he's not playing. I can't sit there and say ok I'm satisfied that you've made this decision not to play.

Of all the parents in this study, Felicia experienced the most dissatisfaction with her own choices during the recovery experience and expressed having regrets about her role. Felicia's daughter Faith had successfully recovered from one previous concussion but was diagnosed with post-concussion syndrome after her second. Felicia attributed the post-concussion syndrome to her lack of sticking to the recovery protocols while she pressured Faith to study for her exams. Despite this, Felicia thinks that "you can always look back, we should have done more maybe, but at the same time, I think we did good." She then reported being satisfied with supporting Faith's return to sport even though rugby makes Felicia nervous.

Only one parent, Crystal, had not yet been confronted with the decision to return to play, as her son Caleb was still in recovery at the time of the interview. However, Crystal reported to be satisfied so far. Crystal said: "I'm not that upset that he's not out there playing it and getting hurt again." However, as discussed before, she also knew being out of sport indefinitely was very hard for Caleb.

Comment: Maybe conclude the chapter with a brief summary statement about the five major themes that arose from the three research questions.

CHAPTER SIX: DISCUSSION, LIMITATIONS, RECOMMENDATIONS, and CONCLUSION

The purpose of this study was to explore the lived experience of a sport-related concussion (SRC) through the perspective of a parent, and how that lived experience influenced the decisions around their children's leisure behaviour in concussion-prone sports (CPS). More specifically, aspects of the lived experience to be sought include the experience of a parent supporting a child through the following events: 1) receiving a concussion, 2) being diagnosed with a concussion, 3) recovering from a concussion, and 4) preparing to return to sport (or leave sport) after a concussion. The discussion of the findings is organized around the key findings from Chapter Five. Each of the major themes outlined in Chapter Five are discussed in relation to the existing literature. Limitations of the study as well as recommendations both for practitioners and future researchers are offered.

Parents' Experiences with Concussion Information

The knowledge parents had about concussions influenced their experience through each stage of the concussion diagnosis, treatment, and recovery process. In most cases parents acknowledged having limited information about concussions prior to their daughter or son getting a SRC. Sport organizations were not described as forthcoming with information about concussions when parents were registering their children to participate. No parents reported receiving any information from their child's sport organization prior to their child's concussive event. They reported receiving limited information from the sport organization following their child's concussion. While two

parents reported some information being provided at the time of a concussive incident, sport organizations were not considered a key source of information once a SRC occurred. Parents found that sport organizations did not “actively” share information (e.g., provide handouts or host information sessions). The only information that was reported to be available prior to a concussion from any sport organization was located on the sport organization website for parents to find on their own.

This lack of information sharing is consistent with previous literature which suggests an alarming number of parents are not provided any concussion information prior to their child’s participation in sports (Haran et al., 2016; Rice & Curtis, 2019). What the current study found was that what was supplied, and what was discovered, was not enough nor was it clear enough. Aside from understanding how to return to sport, there was no information supplied or discovered that helped parents navigate the potential process of stepping away from sport. This lack of information around leaving sport and the uncertain implications for their child’s well-being played a significant role in the decision of at least one parent (Bryan) and may have still played a role on all of these parents regarding future sport participation.

This study included parents of children who all reside in New Brunswick and participated in football, hockey, ringette, rugby, and/or soccer. All children played on one or more sports teams that are associated with New Brunswick Interscholastic Athletic Association (NBIAA), Football New Brunswick (Football NB), Hockey New Brunswick (HNB), Ringette New Brunswick (Ringette NB), Rugby New Brunswick (Rugby NB), and/or Soccer New Brunswick (SNB). All but one of these sport organization websites have information on concussions, but some sites are easier to navigate to locate that

information than others, and some are more comprehensive than others. For example, HNB has concussion resources on the Risk and Safety Management page (<https://www.hnb.ca/en/risk-and-safety-management2>), Ringette NB provides resources on its Concussion page (http://ringette-nb.com/page.php?page_id=91676), and the NBIAA provides resources on their Concussion Information Page (<https://www.nbiaa-asinb.org/en/publications/concussion-information>). Football NB, on the other hand, locates its concussion resources on their Policies, Documents and Constitution page (http://footballnb.ca/files/fnb_concussion_and_return_to_play_policy.pdf), and SNB lists their resources on their Documents page (<https://www.soccernb.org/en/about/documents/>). Finally, Rugby NB has no concussion resources listed. However, they do have a page called Rugby Play Smart (http://www.rugbynb.ca/content_page/10047527/) which discusses a program that is aimed at education for safe play. There is no direct mention of concussions and there are no direct links on the webpage that link to any further information regarding the Rugby Play Smart program.

Except for Rugby NB, each sport organization provides resources and/or direct links to further resources that aid in the detection, diagnosis, recovery, and return to play steps of concussion management. The NBIAA also includes information on return to learn (e.g., school). Of these six sport organization websites, only three of them discuss concussion information being supplied to parents prior to a concussion occurring in sport. According to the NBIAA's Concussion Information page: "Schools *should* [emphasis added] follow the Concussion Management Procedures as per the New Brunswick Safety Guidelines for Secondary Interscholar Athletics" (<https://www.nbiaa->

asinb.org/en/publications/concussion-information). The website then provides a link of the aforementioned document, which states: “Parent/Guardian must be: Provided with a copy of ‘Appendix C-2 – Tool to Identify a Suspected Concussion’ signed by the coach” (New Brunswick Department of Education and Early Childhood Development, 2014, p. 84). Similarly, SNB directs parents to the *Concussion Policy: Players’ Health and Safety First* (Canada Soccer Sports Medicine Committee, 2018), which states:

As part of a pre-season concussion education strategy, we recommended:

1. Our players and parents/guardians *should* [emphasis added] review as a minimum, the Summary section of this document, OR both the Respond and Recognize sections of this document (*recommended*) [emphasis added] as part of their soccer registration process.
2. All participants in our sport *should* [emphasis added] be encouraged to familiarize themselves with the entirety of our Concussion Guidelines. (p. 2)

Both NBIAA and SNB use the word “should” with regard to providing resources to parents, which suggest that not all sport teams under those organizations are providing the necessary information. Football NB, on the other hand, requires that as of September 11, 2019, “all parents, athletes and coaches must sign the declaration of understanding [regarding concussions] at the beginning of the season” (Football New Brunswick, 2017).

Despite the NBIAA, SNB, and Football NB all suggesting parents would be informed regarding concussions prior to play, all the parents in this study reported that no concussion information was distributed prior to play. It was only after their child sustained a concussion that parents were provided with concussion information. It is important to note that it is unclear when this information was included on these websites

and may represent progress in terms of the effort of sport organizations to offer information since the time when these parents' children experienced their concussions. It is also important to note that the individual community organizations were not reported for each participant; therefore, it is difficult to report what education individual community organizations provide online. The provincial organizations' role in this area is to regulate sport and provide resources to its clubs and members (Sportweb, 2005). As outlined, not all provincial organizations required community organizations to educate its members on concussions.

More concussion information was supplied to parents within the health care context, which mainly aided parents in understanding next steps (e.g., contact concussion clinic, return-to-play protocol). While most parents reported receiving information from a nurse or physician at the medical clinic or hospital, not all parents felt that information was very helpful. This experience was consistent with a recent study that found parents want more from their medical provider (Gagnon et al., 2008; Minney et al., 2019), specifically regarding what to expect during recovery and how long recovery will last. Parents who utilized a private clinic that specialized in concussion treatment reported that source to be their most reliable source of information. These clinics provided concussion education and guidance in concussion recovery; however, not all parents accessed this resource and were therefore only provided with what the sport organization or medical facility offered.

The final important aspect to understand about parents' experiences with concussion information is the type of information parents were looking for. Parents' discussions about their information search shed light on what parents were searching for

and where they were searching for it. Parents reported that they were looking for information that helped them understand what they were supposed to do during concussion recovery and how they could assist their child in the recovery process. This finding is consistent with other studies that suggest parents are looking for ways to help their child recover (Falk et al., 2008; Gagnon et al., 2008; Minney et al., 2019). Parents also wanted to know what the experience of having a child recover from a concussion is like.

Consistent with previous literature, parents in the current study utilized the Internet as their main source of information as they looked at Google results, sport organization websites, and medical websites (Armstrong & Kerns, 2002; Bloodgood et al., 2013; Gagnon et al., 2008). The other source of information was other parents who had lived the experience before. While parents reported having very little knowledge of concussions prior to their own experience, it appears all of them have gained knowledge through their experience. During interviews, parents demonstrated their knowledge as they discussed symptoms they were paying attention to. These results are in line with scholars who found parents to have a good understanding of concussion symptoms (Coghlin et al., 2009; Sullivan et al., 2009). Another study found that while most parents could identify signs and symptoms of a concussion, only half of parents felt they could determine when their child would be ready to return to sport (Rice & Curtis, 2019).

The current study found that parents relied on concussion specialists in some cases to support them in deciding when their child was ready to return to sport. Despite an increased level of understanding, parents still depended on the expertise of others to determine their child's readiness to return. While some parents felt that their experience

with the concussion clinic gave them what they needed, others were still at a loss for understanding how to most effectively support their child (e.g., in a school environment). Other studies have similarly found that parents are searching for what to expect, how long recovery will take, and what they can do to support recovery (Falk et al., 2008; Gagnon et al., 2008; Minney et al., 2019).

While parents in this study did not mention searching for guidance related to leaving sport following a concussion, this information was clearly missing from their experience, which influenced parents' future sport participation decisions. While unsurprisingly, return-to-sport guidelines are readily available, there are no guidelines that assist parents and youth move away from sport. All information parents reported receiving was directed at ensuring their child was ready to return to sport. Not all parents wanted their child to return, but ultimately supported future sport participation. Had this information been accessible, parents could have been more supported and guided in their desire to help their child transition out of sport.

For the most part, parents were frustrated with their concussion education. All parents expressed frustration over not being provided information by their sport organization. Parents were not satisfied with their access to information prior to a concussion or during recovery. A more open, active, consistent, and curated approach to sharing information would have been beneficial to parents in this study.

Experiences with Others in the Recovery Process

Parents' interactions with "others" (e.g., school educators and administrators, health professionals, and sport coaches) all played significant roles in the recovery process that shaped each parent's experience. After their child sustained a concussion,

each parent had to navigate and negotiate their child's absence from and subsequent return to school. This study found that school administrators and educators played a key role in recovery based on their awareness, ability, willingness, and knowledge regarding concussion recovery. While this study did not measure the knowledge of school administrators and educators, parents described children with supportive school personnel as having an easier time returning to school than those who received little to no support. This finding is supported by a recent study that found children and parents had a very difficult and confusing return to school when school administrators and educators were not accommodating and/or uneducated on concussion recovery (Minney et al., 2019).

Physicians often prescribe academic adjustments such as requesting schools to adjust academic demand as part of concussion recovery; therefore, it is important that educators and administrators are knowledgeable about concussion recovery (Master et al., 2012). This includes understanding what adjustments may need to be made and how to gradually return these adjustments to the typical expectation. As teachers and administrators work closely with students, their feedback to both the student and the parents, coaches, and health professionals is valuable (Kolodziej & Ploeg, 2016). The current study found when principals and teachers were knowledgeable, parents did not need to advocate much for accommodations (e.g., Daniel's case). However, when school staff (administrators or teachers) were not aware that a concussion had occurred, did not know what could be done to support recovery, or were unwilling to support recovery, they hindered a child's recovery. This left parents to use their own knowledge about concussion recovery to educate school personnel. This finding is consistent with Minney et al. (2019), who found that parents felt there was a disconnect between the health care

system and school system in communicating the condition and needs of their child. Furthermore, some parents found that educators did not take their child's condition seriously, and when accommodations were not made, children needed to take an extended leave from school, which resulted in children feeling isolated, lacking confidence, and experiencing lower self-esteem. Similarly, according to Brown et al. (2013), parents described having to search for all the information regarding their child's injury and become an advocate for their child. The findings of these previous scholars show the value of supportive and educated school personnel. Other studies have also highlighted the need for educated school personnel (Ball & Howe, 2013; Gagnon et al., 2008).

Little has been studied regarding teachers' knowledge of concussions; however, one study by Dreer et al. (2016) indicates that teachers are not confident in their ability to recognize symptoms and behaviours of a concussed student. In addition, only half of teachers were aware that a concussion may result in a difficulty returning to school. Furthermore, less than half of teachers reported receiving any information on concussions. There is growing support in the United States for return-to-learn programs where an education re-entry plan is required of concussed students. These plans include input from the student, principal, teachers, coaches, and health care professionals. Such plans also ensure school administrators and educators are aware of a student's concussions and are given a tailored strategy to support recovery (Halstead et al., 2013; McGrath, 2010; Popoli et al., 2013; Romm et al., 2018). None of the participants in the current study described their son or daughter experiencing anything similar to a return-to-learn program. However, parents' descriptions suggested that those students who had

teachers and administrators who adjusted the environment, workload, and expectations appeared to have a much smoother transition back to school.

Another finding in this study was that the experience of parents who had utilized a concussion specialist differed from those parents who had not. There was an overwhelming appreciation for the expertise and support parents experienced from the private clinics. Their experiences are supported by a recent study that found that athletic trainers provided significantly more support than expected to concussed athletes (Wayment & Huffman, 2019). With growth in the field of sport-related concussions, the establishment of concussion clinics is on the rise in the United States. As a result, increasingly more patients are being treated in specialized clinics than hospitals (Reynolds et al., 2014; Taylor et al., 2015). A recent study by Beck et al. (2015) found that patients diagnosed by a concussion specialist within one week of the concussive event, experienced a substantially shorter average recovery time.

The current study found that concussion specialists not only assisted the recovery process through exercises, tests, evaluations, and guidance, but were also a significant source of concussion education for both parents and children. Specialists in some cases were utilized as an authority figure to reinforce parents' decisions regarding daily activities. Finally, they were reported to be highly influential in a parent's decision regarding future sport participation. Despite the benefits specialists offered parents, not all parents in this study were able to utilize these services. This may be due to lack of information or misinformation regarding their purpose. Despite being referred, one parent (Dawn) decided not to attend because her son was not planning to return to sport due to the season being over. However, a concussion clinic in Moncton, one of the clinics

that was used, believes that helping an athlete return to sport was seen as “a distant third to the lifelong health and education of our student-athletes” (Arsenault, 2014, sec. 6).

Another parent (Felicia) did not attend a specialty clinic, despite also being referred, because she was told the concussion was “mild,” leaving Felicia to feel that the concussion was not severe enough to justify a specialist. As reported earlier, concussions fall under the term mild traumatic brain injury; however, while it may be “called mild traumatic brain injury . . . there’s nothing mild about it” (James, 2012, 9:48). Finally, one parent, despite having experienced her son suffering three concussions, was not referred to any clinics. These experiences show a lack of consistent information being communicated to parents, which causes confusion and, in some cases, led to parents and their children missing out on a valuable resource.

The other significant relationship that influenced the recovery process for the parents in this study was the sport coach. In a recent study out of the United States, Wayment and Huffman (2019) found that athletes had the lowest expectations of support from their head coach; however, “those who felt supported by their head coach reported more growth benefits and fewer adverse experiences during their return-to-play experience” (p. 9). Parents in the current study all reported having positive post-concussion relationships with their child’s sport coach. Coaches’ roles were reported to range anywhere between accommodating a gradual return to play to guiding the entirety of concussion recovery. Some coaches were characterized as “mother hens” who constantly checked on the child. A similar experience was echoed by parents in another study by Minney et al. (2019), who found coaches to check in during recovery and offer support. While most coaches may not be qualified to guide concussion recovery, they can

all play a role in supporting the process. Despite the potential influence a coach has on an athlete recovering from a concussion, a recent study by White et al. (2014) found that fewer than 50% of coaches recognized the increase risk of subsequent concussions following the initial concussion. Furthermore, most coaches are unaware or uncertain that youth typically have a longer concussion recovery timeline than adults (Shroyer & Stewart, 2016; White et al., 2014). Given the dangers associated with second impact syndrome, these findings are alarming and stress a need for mandatory concussion education for all sport coaches, which is something for which Ontario's *Rowan's Law* (2018, sec. 4) has been advocating.

Previous studies found coaches to be more knowledgeable about concussions than athletes and parents (Cusimano et al., 2017; Guilmette et al., 2007; Mannings et al., 2014; Mrazik et al., 2015). Still, education varied in Canada due to provincial, regional, and organizational policy differences (Cusimano et al., 2017). As stated before, in the United States, all 50 states and the District of Columbia have adopted the Lystedt Law as the guiding structure for managing concussions in sport (Kolodziej & Ploeg, 2016). Chrisman et al. (2014) found that coaches in Washington State received significant training for concussion management, and the coach education component of this law has been closely followed as the law protects schools from litigation if procedures are followed correctly.

While Canada has not implemented *Rowan's Law* (2018) nationwide, there are concussion education programs provided to sport coaches in the Canadian context. Parachute (2017), an organization dedicated to preventing injuries, offers concussion education tools to parents, health professionals, schools, and sport organizations. Another

tool, Making Head Way, is an online concussion education program that is divided into specific modules for soccer, snowboarding, speed skating, freestyle skiing, and football. There is also a generic module for any sport not offered. This program is offered to all coaches, who are part of the National Coaching Certificate Program, free of charge (<https://coach.ca/making-head-way-concussion-elearning-series>).

Managing Child's Experiences with Recovery

Managing a child's experiences with recovery for most parents was complicated. Children's experiences were shaped by the amount of time in and out of school, the amount of time out of sport, the duration of the recovery process, and their parents' influence on recovery. As previously stated, studies have found that athletes commonly underreport concussion symptoms out of fear of the consequences of being removed from play or extended absence from participation (Echlin, 2010; Mrazik et al., 2014; Stein et al., 2015). Greg was faced with managing this behaviour. He was keenly aware that Gavin was not recovered despite Gavin's protests to the contrary. Greg had to constantly contend with Gavin's reports of progress and utilized concussion experts to help reinforce Gavin's actual progress. Greg also found himself in a position where he could not monitor Gavin consistently. Gavin would ignore protocols when Greg was at work. Greg did not take time off work to help Gavin recover, which left Greg frustrated. This experience is consistent with other research that found many parents could not take time off work to help their child recover, or parents who identified the financial burden of recovery as a result of taking time off work (Brown et al., 2013; Minney et al., 2019).

While other parents had less contention with symptom disclosure, many of them found themselves enforcing recovery protocols to ensure their children were not

endangering themselves during recovery. These protocols included minimizing sound and light; ensuring children stayed off electronics such as phones, TVs, and gaming consoles; and limiting physical activities by encouraging rest. This experience, however, did not apply to all parents, and other parents found their children self-regulated in following protocols because they were not feeling well enough to engage in prohibited activities. Davies et al. (2019) also found that parents needed to take an active role and not only monitor behaviour, but also encourage recovery through positive emotional support. However, restrictions on behaviour were sometimes experienced as negative and isolating for children when they were not allowed to engage in their social life.

Managing a child's experience with recovery evolved for parents as they navigated the recovery process. Prior to facilitating a return to sport, parents had to be comfortable that symptoms were gone. Parents of children who had relatively shorter recovery periods began to facilitate a return to sport. Parents whose child experienced a prolonged absence from sport, due to recovery, had to begin looking for ways to help their child adjust to life without sport for an indefinite period of time. Prior to this stage, parents acted primarily as constraints to leisure, as they ensured their child was resting and not taking part in sport or some of the prohibited non-sport leisure activities. This parental behaviour exemplifies interpersonal constraint. Interpersonal constraint is the result of a relationship between people that creates a barrier for participation (e.g., a parent, coach, or doctor restricting their child from playing hockey) Crawford et al., (2009). Minney et al. (2019) also found parents to act as constraints to their child's participation. Parents had to restrict their children from returning to sport and school while also increasing their level of supervision. In this current study, as a child's recovery

period progressed (ended or was extended), parents began to facilitate leisure again. Even children in active prolonged recovery were encouraged to engage in some, but not all, physical recreation pursuits. It is here that parents with children in long-term recovery take on the role of both constraining some leisure (Crawford et al., 2009), while facilitating other leisure pursuits (Raymore, 2002). Bryan was a strong example of this, as he removed Brianna from playing ringette, but then helped Brianna try many leisure-related alternatives to take the place of contact team sport.

Literature about the experience of parents supporting their child to return to play is very limited. Previous studies suggest that parents rely on coaches and health professionals to help determine when their child is ready to return (Turner et al., 2017), and the return-to-play practices are not widely understood by parents and even coaches (Haran et al., 2016). These findings are consistent with the current study.

The other experience parents had to manage was their child's mental health. While some parents expressed more concern with this than others, it was clear that children who were withheld from sport experienced diminished mental health. Caleb experienced a negative mood shift and depression, and Brianna was seeing a child psychologist to help her cope with the loss of sport. Minney et al. (2009) found that there was a strong desire to have access to mental health professionals during recovery, and the current study suggests that the loss of sport – even temporarily – may be difficult for some young athletes. Furthermore, some parents were surprised by the severity of their child's mental health changes. Davies et al. (2019) found that children who received a concussion suffered high levels of anxiety and stress, depression and sadness,

interpersonal difficulties and isolation, and irritability and moodiness. Both previous studies and the current one support the need for access to mental health care.

Parents' Experiences with Valuing Sport while Assessing Risk of Playing

In this study, all parents reported understanding the high value of sport in their child's life. Most parents fully supported their child's participation despite the risk involved with playing. For some parents the decision to support continued involvement took longer than others, but ultimately all but one parent described supporting their child's return to sport. Crystal, the exception, was still anticipating her son's clearance to return to sport at the time of the interview. Parents' experiences taught them about concussions, and they witnessed firsthand what navigating a concussion was like. Despite this hands-on experience, parents continued to support their child's participation. This suggests that knowledge and experience with concussion does not necessarily mean that sport participation in concussion-prone sports (CPS) will diminish. This suggestion, though, is in conflict with the idea presented by Elizabeth, who speculated that more information during registration would scare parents away and may be the reason sport organizations provide limited information. A recent study found that the motivation for parents to sign up their children to sport (hockey) was driven by their "perception of rep hockey as a vehicle to promote the skills, ideals and character to assist in the development of socially secure individuals later in life" (Chard et al., 2015). While this may apply to all sports as a driving factor for sport registration, it seems once a child is "hooked," once parents are hooked into the social world of their child's sport, and once parents see their child's happiness with participation and the value of sport, not supporting their participation is harder.

This study found that, after considering the perceived risks to physical safety against the meaning of sport in their child's lives and how non-participation would impact them, parents supported continued participation. This was most significantly exemplified by Bryan who tried a wide variety of things to help Brianna accept life without CPS. Ultimately after years of depression and failure to find suitable alternatives, Bryan supported Brianna's return to CPS.

The relationship that Brianna and the other children had with sport, as described by their parents, could be considered serious leisure. Organized youth sports are one avenue for youth to enter serious leisure (Siegenthaler & Gonzalez, 1997). According to Stebbins (1992), serious leisure consists of six qualities that differentiate it from casual leisure. The first quality is the need to *preserve*. This refers to emotional rollercoaster of leisure participation and sticking with the activity through adversity (e.g., injury, failure to win). The children in this study all encountered significant adversity and all of them expressed a desire to work through it and return to their sport.

The second quality of serious leisure is the opportunity for *career*. All children in this study were competing a competitive level and, therefore, had experienced a career progression from the "learn to" level of sport. The third quality of serious leisure is personal *effort* based on training, knowledge, or skill. While not all parents referred to this, some parents, such as Felicia, did refer to the effort of her child Faith related to being in both peak physical and mental shape to perform at her best. Other parents spoke of their children prioritizing sport over other everyday activities. Presumably, to reach the competitive level these children were at, they had trained quite extensively.

The fourth quality of serious leisure is *durable benefits*, which refers to leisure resulting in opportunities for “self-actualization, self-enrichment, self-expression, recreation or renewal of self, feelings of accomplishment, enhancement of self-image, social interaction and belongingness, and lasting physical products of the activity” (Stebbins, 1992, p. 7). While not all of these opportunities were highlighted in this study, through the descriptions of concussion recovery and the desires of children, it appears the children in this study realized these opportunities through sport. For example, the friendships developed through sport become part of a valued network and Caleb’s mother, Crystal, took him to practices so he could socialize with teammates. The fifth quality of serious leisure is *unique ethos*, which refers to the unique social world created by that leisure activity and the rules and culture within that world. This was not something that was highlighted by parents.

The final quality of serious leisure and arguably, the most significant, is *identity*. This refers to the identity participants derive from their leisure activity. A person engaged in serious leisure will strongly identify with their activity and even describe themselves to others as a “football player” or “ringette player.” Recent studies suggest that those who transition out of sport have the opportunity to slowly evolve their identity (MacCosham & Gravelle, 2017), while others who leave or are forced to leave sport as a result of injury may be faced with sudden identity concerns (Todd et al., 2018; Von Rosen et al., 2018). Identity exploration is a crucial stage for adolescents, and therefore, an injury that restricts sport participation has a greater impact on identity for youth than it does for adults (Von Rosen et al., 2018). According to their parents, the children in this study seemed to strongly identify with their sports, and some children even experienced strong

adverse feelings when confronted with prolonged absence from sport. Given the information provided by parents, it is very likely that many of the children, if not all, experienced their sport participation as serious leisure. The high level of commitment and connection that results when one is engaged in a serious leisure pursuit may explain why some athletes, like Gavin, struggled to follow protocol and were particularly anxious to return to sport.

Parents also shared their own personal connection to their child's participation. While all parents reported enjoying watching their child play, some also loved the social life that was associated with their child's sport, and others cherished the mutual bond shared with their children related to sport. These experiences added to the value parents placed on their child's participation. Parents in this study identified many benefits to their child's participation in sport. These benefits included improved physical and mental health, increased social opportunities, a sense of comradery, an opportunity to be part of a team, sport as a productive use of time, opportunities to practice goal setting, and, most commonly, increased happiness. A recent study found that when youth were involved in team sports they experienced increased mental health and sense of peer belonging compared to when they were not engaged in sport (Oberle et al., 2019). Recent studies by Na (2015) and Neely and Holt (2014) have found that parents valued sport for their children because of the benefits associated with sport participation. These benefits included learning life skills, learning how to win and lose, exercising commitment, experiencing self-achievement, building self-discipline, having an outlet to burn energy, encouraging positive self-perception, personal responsibility, sportsmanship, friendship, teamwork, learning to respect authority, engagement in school, development of

fundamental skills, and, finally, health and well-being. Many of these benefits were recognized by parents in the current study as well.

The information provided in this part of the discussion serves to build a case for how difficult a decision parents had when confronted with returning to play or the prospect of future sport participation. While all parents supported their child's return to sport, they also spoke about the fear of future injury and how that may change further support of sport participation. Parents expressed fear that their child could experience long-term brain damage, limited opportunities in life, and even death should their child sustain another concussion. While evidence of parents being afraid of concussions is readily available (Bloodgood et al., 2013; Love & Solomon, 2015), especially from the popular press (Boren, 2014; Broussard, 2014; DeLessio, 2014; Linskey, 2014; Schiff, 2015), research on parents who had experienced supporting their child through a concussion and then facing the problems surrounding return to play was not found.

Parents in this study ultimately supported their child's return or potential return to sport; however, not all parents found this to be a simple process. For example, Bryan struggled continuously with how to move forward, eventually supporting Brianna to return to sport. Even those parents who did identify the decision as simple had other concerns that were conflicting with their decision. For example, Elizabeth had no problem supporting Ethan's return to sport, but was afraid that one day they may not be so lucky and there could be long-term damage. The experiences of parents in this study highlights the ethical dilemma parents must face when considering the value of sport verse, the risk of participation.

Ethics of Sport Participation Following Recovery

While all parents in this study reported satisfaction with their decisions throughout and following their child's recovery, it was evident that all parents were also uncomfortable with the unknown future of their child's physical well-being within sport or emotional well-being out of sport. Parents were not able to definitively identify the best course of action for their child as they had no certainty of the future. Despite this uncertainty, parents chose to support their child's return to sport. Some parents' support included caveats of reinjury, almost as if there was an acceptable number of concussions and an unacceptable number of concussions. Research indicates that all concussions are dangerous to health, and there is no magic number of concussions that constitute having sustained too many concussions (Meehan & Micheli, 2018). Parents in this study were aware of the severity of concussions, and it was this understanding that made their decisions so difficult and their satisfaction with their decisions so conflicted, which highlights the ethical dilemma of sport participation following recovery.

The ethical dilemma parents in this study faced was the struggle between child autonomy and paternalism. Autonomy is "understood as the capacity to make choices in an informed and voluntary way" (McNamee et al., 2015, p. 197). Young children lack autonomy, leaving their parents to make most decisions for them as they learn to understand outcomes and consequences of choices (Dixon, 2007). This is known as weak or soft paternalism. Paternalism is the intervention in the activities of another "that is aimed at achieving significant good for or avoiding significant harm to the intervened" (Mullin, 2014, p. 414). Weak paternalism is justified when the intervened has impaired or substantial incompetence. This most typically applies to young children and adults with

cognitive impairments (McNamee et al., 2015). Unlike weak paternalism, strong paternalism does not consider one's level of autonomy, but rather forces others to do or not do certain things in the aim of significant good or avoiding significant harm. This is most recognized in traffic laws, or, for sports, safety rules and concussion protocols.

Parents in this study struggled with how to, or if they should, exercise weak paternalism regarding their child's sport participation while still trying to respect their child's autonomy. Adolescents are not automatically included, like young children are, in the justification for paternalism. It all depends on the complexity or significance of the issue at hand (McNamee et al., 2015). Because autonomy grows with age (Sheldon et al., 2006), it is difficult to determine at what point adolescents are capable of making an informed and voluntary choice around the issue of SRCs. All the children in this study were between the ages of 15 and 17 and the issue is extremely complex. The ethical dilemma was not as simple as a child's desire to play versus a parent's duty to protect their child's short-term and long-term physical health. Parents also found that pulling their child from sport could lead to poor physical health and could also lead or had already led to a state of emotional trauma. Leaving sport left their child vulnerable to experiencing depression. Given that SRCs have been linked to the development of the long-term degenerative disease chronic traumatic encephalopathy (CTE), and with the risk of second impact syndrome (SIS) and post-concussion syndrome (PCS), it is difficult to know if an adolescent is capable of making a truly informed and voluntary decision. Paternalism can also conflict with a child's right to an open future (Dixon, 2007). As parents make decisions for children, they direct them towards or away from many areas of potential life. To apply this to SRCs, if a parent were to remove their child from sport

due to fear of their child's physical safety, they are taking away the opportunity for that child to become a professional athlete in that sport. On the other hand, should a parent decide not to intervene, and their child develops cognitive disabilities associated with concussions, then the child's future is again not so open.

Given the complex ethical dilemma parents face, it is impossible to suggest the correct course of action. This study did not find parents made good or bad choices regarding their child's recovery or participation, but rather the results of this study serve to inform us about the experience parents had. While there is no correct course of action, it is important that there is at least a clear course of action for parents to pursue. This study found that, despite the existence of recovery protocols and return-to-play protocols, the course to return their child to sport was not very clear and lacked information, especially prior to their child receiving a concussion. Navigating this process was complex and frustrating, and returning to sport was also not the only logical course of action. Another equally valid course of action is to leave sport. Parents had very little support or understanding of how to help their child do this. To many parents it was not considered as an option and, for others like Bryan, it was almost impossible to accomplish. Resources that help parents guide their children away from sport are non-existent, and while the return-to-play protocol is important to follow for any concussed athlete to achieve recovery, it also inherently suggests that the athlete should return to play.

Limitations

Limitations to this study include geographical limitations, as well as limitations of participants' memory and potentially having not had much time pass since the incident.

First, all participants in this study reside in New Brunswick and therefore may not reflect a wider Canadian perspective on the topic. Participants were also limited to having a child who had suffered a concussion in the previous three years, which poses two problems. First, some were not adept at recalling their experiences with great clarity, and second, they may not have had enough time to witness long-term advantages or disadvantages associated with CPS participation that shaped their opinions.

Another limitation surrounds the fact that only one parent per child was interviewed, and other parents may have had additional or new information to share. In addition, because this study was phenomenological and focused solely on the parent's experience, this study was unable to represent the perspectives of the other groups mentioned in the findings which include children, coaches, health professionals, and schoolteachers and administrators. All these perspectives would have been a valuable addition to the discussion.

Recommendations

Following this research there are many recommendations that can be made for practitioners as well as future researchers. In response to parents' experiences of receiving inconsistent information from sport organizations and health professionals that some parents did not always feel would apply, the following is recommended: First, to meet parents' information needs, sport organizations should supply all participants with a concussion toolkit during registration. This toolkit would be specific to each sporting organization's policies, procedures and regulations. The information could also provide parents and athletes with specific sport scenarios that increase the risk to concussive events and strategies to return to their specific sport. Second, health professionals can

also meet parents' information needs by supplying all patients with a concussion toolkit that covers concussion education from a general perspective.

In response to parents having mixed experiences with support from their child's school, educating all teachers on how to recognize concussive symptoms, what to expect from a concussed athlete, and strategies to assist recovery should be considered. Furthermore, if return-to-learn protocols that connect health professionals, coaches, administrators, teachers, parents and athletes were prioritized similarly to return-to-play protocols, parents may feel more supported and informed. As parents in this study reported to have strong success with concussion clinics, doctors and coaches may want to consider referring all concussed athletes for a consultation with a concussion specialist as soon as it is feasible.

Another recommendation would be to adopt Rowan's Law not only in New Brunswick but in all of Canada to improve concussion awareness and accountability among parents, athletes, coaches, and sport organizations. The success of the Lystedt Law south of the border has proven there is value in having concussion legislation. The final practical recommendation is in response to children experiencing diminished mental health as an outcome of concussion and as a result of the absence or loss of sport. Concussion education that includes information on a concussion's effect on mental health could be helpful, and health professionals may wish to consider recommending mental health professionals to patients suffering from symptoms of depression, isolation, and low self-esteem, etc.

From an academic perspective, there was limited academic research related to information sources for parents. Therefore, it is hard to determine if these parents are

having a typical experience or if there are other factors that influenced their experiences with concussion information (e.g., geographic location, sport organization policies). This research also discussed the potential impact of concussion information being provided prior to or at the time of sport registration. Current studies that connect the influence of concussion awareness with sport registration were not found and should be further studied. The presumption Elizabeth shared, that distributing concussion information to parents at or in advance of registration negatively affects registration, needs further investigation. It would be important to understand whether registration is affected not only for returning athletes, but also at the learning levels of sport, where it may be a child's first experience in a CPS and CPS has not had the opportunity to imprint on children's and parents' lives.

In addition, this study highlighted the ethical dilemma parents encounter when considering future sport participation following a concussion. Parents were faced with comparing the physical safety and likelihood of re-injury, with their child's desires and mental health. Parents had little support in making these decisions and were significantly influenced what support they did have. More information on this ethical dilemma is needed. The final recommendation is predicated on the finding that leaving sport after a concussion was not well understood. While return-to-play has been the adopted concussion recovery guidance across all sports and activities, there should also be a consideration made for recovering and retiring from play. As highlighted earlier, there are no resources that help athletes and parents electively transition out of sport following a concussion. Not only were parents not provided with guidance on how to leave sport, or

that it was even a viable option, but there was no scholarly information on the experience of elective youth sport retirement due to injury and therefore needs further research.

Conclusion

The parental concussion experience was multifaceted and complex. Parents were confronted with challenges throughout the entire experience which began before they knew there was a problem. Parents did not enter the experience with a clear understanding of how to navigate concussion recovery and life after concussion. The main challenges parents faced included access to relevant, accessible, and timely concussion education; managing recovery symptoms and protocols; helping their child integrate back into typical life; returning to sport; and the ethical implications of concussion-prone sport participation. Parents also expressed their personal concerns and fears regarding their children. Parents were not only concerned with their child's physical welfare and long-term health in relation to sustaining concussions, but they were equally concerned with their children's mental health and stability. Parents supported their children's return to sport, in part, because of the reactions their child had to being absent from sport and to the prospect of that absence becoming permanent. However, parents were not completely comfortable or satisfied with their support decisions because they could not guarantee their child's safety.

This study was the first of its kind to explore parents' experiences with a child's concussion that included understanding what they knew before their child was concussed through to after concussion recovery was perceived to be completed. Many issues were raised that, if addressed, would make the experience easier to navigate for other parents. Concussions represent a growing field of study and the social implications of receiving a

concussion is a relatively small area of study in comparison to the physical aspect of the injury. The more that is known about the lived experience of a concussion from various perspectives (e.g., athlete, parent, coach, teacher), the more opportunity there is to add to concussion education such as strategies to prevent, detect, treat, recover, and move past concussions.

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APPENDIX A: Recruitment Email for Potential Participants

Dear (Name of Potential Participant),

I am Cole Wight – a master’s student in Faculty of Kinesiology at the University of New Brunswick (UNB). I am conducting a study on the parental experience of a child’s sport concussion. This research is being conducted under the supervisor of Dr. Charlene Shannon-McCallum.

I am seeking to interview parents who live in the Maritimes who have a daughter or son between the ages of 8 and 16 who has suffered a sport-related concussion from football, rugby, soccer, hockey, or ringette.

I am asking that your organization be willing to share this research opportunity with parents who meet the criteria, by forwarding an information letter (attached) that provides more detail on the study to the parents of your athletes. I also ask that your organization share the study on social media using the poster provided (attached). Finally, I ask permission to attend games and tournaments where I can set up an information table to recruit participants.

I hope that the information collected in this study goes a long way to understanding more about concussions and the parental experience. I believe parents have valuable insight that has not been shared and that their experiences can have an influence in increasing our overall understanding about this phenomenon.

Your support is voluntary and will be extremely beneficial, and I thank you for taking the time to consider supporting this research. If you are willing to assist this research, please contact me, the principal investigator, at cole.wight@unb.ca or by phone at (250) 327-8799. I have attached to this email an information letter which provides more detail on the study. If I can provide you with any further information to help you decide about participating, do not hesitate to contact me.

This study has been reviewed by, the Research Ethics Board at the University of New Brunswick and is on file as REB #2018-150

Sincerely,

Cole Wight
University of New Brunswick

APPENDIX B: Social Media Poster



**PARENTS NEEDED FOR
CONCUSSION RESEARCH**

I am seeking to interview parents (legal guardians) of children aged 8-16 where the child:

- has suffered a diagnosed concussion from football, rugby, hockey, ringette, or soccer
- has completed recovery (within 3 years) or are currently in prolonged recovery (4 weeks or longer)
- currently resides with the parents
- resides in the Maritimes

For more information contact:

Cole Wight
REB # 2018-150

cwight1@unb.ca
250-327-8799

APPENDIX C: Response Email to Potential Participants

Thanks for reaching out (Potential Participant),

I am looking to speak to parents like yourself, who have a child that has suffered a sport-related concussion. The research is all about the parental experience in hopes we can shed new light on the concussion topic. I have attached an information letter I would like you to read over that explains the study and the role you would serve as a participant. Please read it over carefully and feel free to ask any questions you may have. I appreciate your interest in my research and look forward to speaking with you further.

Thanks,

COLE WIGHT

MA Sport and Recreation Studies • Candidate • Faculty of Kinesiology



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Confidentiality Note: This email and the information contained in it is confidential, may be privileged and is intended for the exclusive use of the addressee(s). Any other person is strictly prohibited from using, disclosing, distributing or reproducing it. If you have received this communication in error, please reply by email to the sender and delete or destroy all copies of this message.

APPENDIX D: Participant Information Letter

University of New Brunswick
Faculty of Kinesiology
90 Mackay Drive
P.O. Box 4400
Fredericton, NB E3B 5A3

Date:

Dear Potential Participants,

This is an invitation to participate in a voluntary study that focuses on understanding parents' experiences with supporting a child through a concussion (incident, diagnosis, recovery, return to play). I will be conducting this research as part of completing a Master of Arts in Sport and Recreation Studies degree in the Faculty of Kinesiology at the University of New Brunswick under the supervision of Dr. Charlene Shannon-McCallum. The following is an explanation of the research and what your participation would involve.

Concussions have become a pressing topic in amateur sports. A significant amount of attention has been placed on rules, guidelines, and technology to help reduce the risk of receiving a concussion and to improve treatment of concussed athletes. This includes the push to educate administrators, coaches, athletes, and parents on the symptoms and recovery procedures of a concussion. Research has been conducted on the awareness levels of these populations, but there has not been research to date that explores the experience of parents. Parents are the most significant source of influence on a child's leisure choices. Without parents most children would be unable to participate in organized sport. Therefore, it is the parents who have the final say in their child's activities. Given this influence, this research aims to explore the experience of parents who have had a child diagnosed with a concussion. Events explored include: the concussive event, diagnosis, recovery, and return to play. In addition to exploring these events, information will be sought regarding the parent's knowledge of concussions, his/her experience obtaining that knowledge, the influence his/her knowledge and experience has on participation decisions, and the parent's satisfaction with those decisions.

I am seeking to interview parents (legal guardians) of children aged 8-16 where the child:

- has suffered a diagnosed sport-related concussion from football, rugby, hockey, ringette, or soccer
- has completed recovery (within 3 years) or are currently in prolonged recover (4 weeks or longer)
- currently resides with the parents
- resides in the Maritimes

If you are interested in being part of this research, you will be asked to participate in an interview with myself regarding your experience as a parent supporting a child with a concussion. Examples of questions being asked include: Describe what supports you provide your child in playing sport? Describe your experiences with searching out information or receiving information on concussions? Describe your experience helping your child through recovery. How has your child's sport participation changed since the concussion? Describe how you feel about the decisions you have made during your daughter's/son's recovery and about her/his sport participation.

You retain the right to skip any questions and redact any responses. The interview is expected to last between 45-60 minutes and can occur in person, over the phone, or through video conferencing. The time and location will be at your convenience and preference. With your permission, the interview will be audio recorded, to assist in the analysis process of the study. There are no known or anticipated risks to you as a participant.

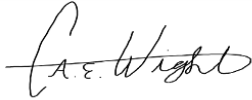
You may withdraw from the study without consequence at any time or at any phase during the study. You may also withdraw any of the information collected pertaining to you at any time, without penalty. Your personal information you provide will be confidential and the representation of your experiences will be anonymous to protect your identity. Furthermore, you will not be identified by name in any thesis, report, or publication resulting from this study. Once the interviews have been transcribed, audio recordings will be destroyed. All hard copy materials will be kept in a locked filing cabinet and only I will have access to these materials. Results from this study will be offered to you for verification, and a summary of the study findings will be sent to you.

This project has been reviewed by the Research Ethics Board of the University of New Brunswick and is on file as REB 2018-150. If you are interested in participating, have any questions regarding this study, or would like additional information to assist you in reaching a decision about participation, please contact myself, Cole Wight at 250-327-8799 or by email at cole.wight@unb.ca. If you wish to direct questions or concerns resulting from your participation in this study to an individual not directly associated with

this study, please feel free to contact Dr. Usha Kuruganti, Assistant Dean (Graduate Studies and Research) of the Faculty of Kinesiology, at 506-447-3101.

Thank you for your interested in participating in this study. I would be grateful to speak with you and share your voice with the academic community.

Sincerely,

A handwritten signature in black ink, appearing to read "C. Wight". The signature is fluid and cursive, with a large initial "C" and a stylized "W".

Cole Wight
MA Sport and Recreation Studies Candidate
University of New Brunswick
cole.wight@unb.ca

APPENDIX E: Consent Form for Participation

I understand that the main goal of this research is to explore parents' experiences of supporting their children through the events of a concussion. Cole Wight is conducting this research as part of his Master's degree at the University of New Brunswick (UNB). This study is being conducted under the supervision of Dr. Charlene Shannon-McCallum at UNB.

This project has been reviewed by the Research Ethics Board of the University of New Brunswick and is on file as REB 2018-150.

- I understand that face-to-face or phone/video conference interviews will take approximately 45-60 minutes to complete.
- I understand I have the option of allowing my interview to be audio recorded to ensure an accurate recording of my response.
- I understand my participation in this study is voluntary. At any point during the study, I may "pass" on answering any particular question and that I may withdraw from the study at any time without explanation. I understand that the information I give you during the interview will be kept strictly confidential.
- I understand that excerpts from the interview may be included in publications to come from this research and that the quotations will be anonymous.
- I understand that my name will not appear in any report or publication resulting from this study.
- I understand that once the interviews have been transcribed and the recordings are no longer needed, audio files will be securely and permanently erased.
- I understand all hard copy materials will be kept in a locked cabinet and all electronic materials will be under password protected file folder to which only the researcher will have access to these materials.
- I understand that my name will not be attached to any hard copy materials apart from this consent form.
- I understand that I will receive a report of the study's findings after data collection has been completed.

I have read, understood, and agree to the above conditions.

Please print your name: _____

Please print your address: _____

Phone Number: _____

Your signature: _____ Date: _____

Contact Information: Cole Wight

Phone: XXX-XXX-XXXX

Email: cole.wight@unb.ca

APPENDIX F: Interview Guide

Project: The Parental Concussion Experience: A Phenomenological Exploration of Concussion's from a Parents Perspective

Time of Interview:

Date:

Place:

Interviewer: Cole Wight

Interviewee:

Demographics (age, gender, parent and child):

Sport(s):

Overview of the Project: This research project aims to understand the experience of supporting a child through a concussion and inquires how that experience, and a parent's topical knowledge, influences their decisions to support their children in concussion prone sports. You will be asked questions that will highlight your personal experience with your child's concussion. If at any time you no longer want to continue the interview, you may express that desire and the interview will be terminated. Furthermore, you may skip any questions or redact any responses you wish. This interview will take between 45-60 minutes and I want to thank you for your willingness to meet with me.

Introduction

1. I'd like to start by getting you to tell me a bit about yourself and your family.
 - Probes: How many children do you have? What are their ages? What do you do for a living?
2. Tell me about your child and the relationship they have with sport?
 - Probes: What sport(s) does your child play? What level of play (recreational, competitive, high level competitive)? What organization do they participate with (school, community etc.)?
3. Describe what supports you provide your child in playing (identified sports)?
 - Probes: Financial, Transportation, Emotional, Coaching etc.?
4. How many concussions has your child been diagnosed with?
 - Probes: How many of these were related to their sport?
5. Do you think your child has suffered a concussion that was not diagnosed, if so how many?
 - Probes: Why do you think they have or have not had an undiagnosed concussion. If you think they have, when did you first think so? What did you do when you suspected they had a concussion?

Knowledge/Awareness and Information Sources

6. How would you define concussion?
7. Describe the symptoms a person with a concussion would experience?
8. Describe your experiences with searching out information or receiving information on concussions?

- Probes: What information has been given directly to you (by sport or school administrators or coaches)? What information have you gone searching for? Where did you start in looking for information? Have you felt you were getting the information you needed? What sources did you use to develop your understanding? Do you view these sources as accurate or reliable?

Concussion Experience

9. Describe your experience, as a parent, with your child being injured and learning they had a concussion.

10. Describe the moment when you found out your child had a concussion.

- Probes: Where were you? What was your child doing? How did that feel? What did you do? What did others do (i.e. coaches, family, trainers etc.)?

11. Describe your experience helping your child through recovery.

Probes: What were you told about recovery? Did you seek additional information aside from what you were told? What roles did you play in the recovery process (e.g., what sacrifices did you have to make? What changes were put into place)? How long was the recovery process? What concerns did you have throughout the recovery process?

Decision-Making

12. Describe the influence that your experience related to your child's concussion has had on any decisions you've made about her/his sport participation.

13. How has your child's sport participation changed since the concussion?

14. How have your support techniques changed since the concussion?
15. What factors were most influential in the changes [or lack there-of] around concussion prone sport participation?
16. How does your knowledge of concussions influence your choice to support your child in (sport) ?
- Probe: If not then what does?

Satisfaction

17. Describe how you feel about the decisions you have made during your daughter's/son's recovery and about her/his sport participation.
18. What are some factors that may change your current decisions?

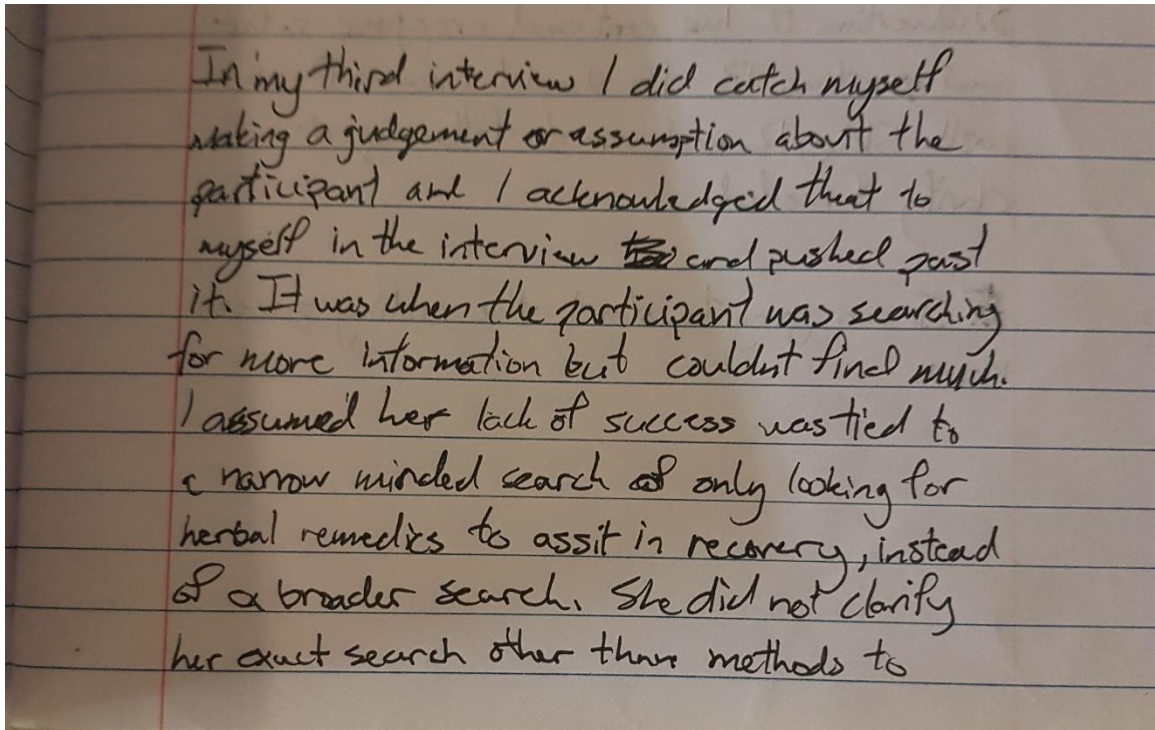
Conclusion

19. Is there anything about your experience with your daughter's/son's concussion that I have not asked you about but that you feel was significant or is important for me to know?
20. Can I complete a follow-up interview to discuss results to ensure data is accurate?

Thank you for participating in this interview and research. I assure you that your identity and information will be kept confidential. If you have any questions or comments, feel free to contact me using the email provided on the handout.

APPENDIX G: Data Collection Journal Sample

Excerpt from December 10, 2018



In my third interview I did catch myself making a judgement or assumption about the participant and I acknowledged that to myself in the interview ~~to~~ and pushed past it. It was when the participant was searching for more information but couldn't find much. I assumed her lack of success was tied to a narrow minded search of only looking for herbal remedies to assist in recovery, instead of a broader search. She did not clarify her exact search other than methods to

help day to day recovery.

I highlighted a couple of tips discussed in the transcription phase.

1) Ask about parents social effects of removing child from sport.

2) Follow up more on school life and accomplishments.

3) Question 12 has confused everyone so far and questions 13-16 should answer 12 as well. Skip 12 and use to follow up or clarify if needed.

~~I~~ I am going to start the coding process now.

APPENDIX H: Feedback Letter

May 2019

Dear (Name of Participant)

Thank you very much for being a part of this study that sought to understand and share the experiences of parents supporting their child through a concussion. Your involvement and input were valuable in contributing to the overall findings and results of the study.

The goals of the study were:

- To understand what it is like to support a child through a concussion.
- To identify parental knowledge and the experience obtaining their knowledge of concussions.
- To determine the role their knowledge and experience of concussions plays their decisions around continued sport participation for their child.
- To recognize the feelings parents have regarding their sport participation decisions following concussion recovery.

These goals were achieved, and an executive summary of the results is attached.

I enjoyed the opportunity to work with you in achieving these goals and wish you all the best in the future. If you would like to contact me about the research, please do not hesitate. The principal investigator, Cole Wight, can be reached by phone at XXX-XXX-XXXX or by e-mail at cwight1@unb.ca.

Thank you.

Cole Wight
University of New Brunswick

APPENDIX I: Executive Summary of Findings

This study conducted interviews with seven parents, all of whom have a child between the ages of 8 and 17 who has suffered a sport related concussion in football, hockey, rugby, ringette, and soccer. The interview delved into the experience of supporting a child through the recovery of concussion. This study discovered five essential themes related with the parental concussion experience. The following is a summary of the findings based off those interviews:

Theme 1: Parents' Experiences with Concussion Information

Parents reported receiving mixed information from sport organizations. Some received concussion information only at the time of a concussive event, others were aware of information on the sports organization's website, but were not specifically directed to it, and all parents reported to not receive any concussion information at the time of sport registration. Most parents reported receiving information from diagnosing doctors, or nurses, but some parents found that information limited and unhelpful. Almost all parents were compelled to educate themselves as their other sources were insufficient to prepare them and teach them to support their child in recovery. Parents also expressed frustration with searching for information as it was difficult to find, confusing, or some felt they couldn't find information that applied to their situation.

Theme 2: Experiences with Others in the Recovery Process

After the initial rest occurred at home, parents had to help their child slowly reintegrate into typical daily life such as school, social, and eventually sport. As parents are only able to control what occurs at home, they had to rely on the relationships of "others" to help their child through recovery. More commonly than not, school administrators and teachers were supportive and provided accommodations to help the child be successful while they were unable to perform to their typical ability. However, some parents found their school to at times be unhelpful, refuse accommodations or even question the validity of the injury. It was clear that those parents and children who were supported in the

school environment had an easier transition and recovery.

Coaches were another important relationship for parents and their children. All coaches were reported to be supportive and patient with recovery. Some coaches took an active role in recovery and ensured the child knew what to do and what not to do. Other coaches followed the recommendations of health professionals closely to ensure a safe and smooth transition back to sport.

The last significant relationship parents mentioned was their health professionals. Most parents reported utilizing different health professionals to guide recovery which included physiotherapists, family doctors, a child psychologist, a chiropractor, and an optometrist. The most common professional was a physiotherapist or doctor who specialized in concussions. Parents relied on these professionals for education, guidance, and even as an authority to reinforce rules given to the child by the parent. These professionals were highly influential in the decision-making process regarding if and when to return to sport.

Theme 3: Managing Child's Experiences with Recovery

After the concussion, parents had to not only navigate their own experience of the concussion, but also manage their child's experience with recovery and their reaction to the event, and recovery protocols. Some parents found themselves reinforcing rules to keep their child safe. These included limiting screen time, social time, schoolwork, and prioritizing rest. Other parents found their child to naturally follow the protocols because they were not feeling well. One parent found themselves in a constant battle with their child to follow protocols and rest. For some parents the most difficult experience to manage was their child's reaction to the temporary loss of sport as their child experienced depression, and loss of social life.

Theme 4: Parents' Experiences with Valuing Sport while Assessing Risk of Playing

All parents expressed the value of sport in their child's life and the fear of losing that value if their child was no longer in sport. Sport provided a way to be physically and

mentally healthy. It provided opportunities for friendship and sport was something to look forward to and a source of happiness and all children identified strongly with their sports. Sport was also a point of happiness for parents. All parents shared the joy of watching their child participate. Some parents found their child's sport to facilitate their own social opportunities, and some parents found sport to bond them with their child. Regardless of the value of sport, it still poses a physical risk to their child and it is this risk that made participation decisions difficult for parents.

While some parents have more reservations than others, ultimately, all parents in this study supported their child's return or potential return to sport. Parents noted mental health as the biggest influence to support their child's participation. The fear of life without sport was strong with all parents in this study. For the most part, if their child still had a desire to play, the parent was willing to support them.

Theme 5: Parents' Experiences with Their Response and Decisions During Recovery

Generally, parents reported to be satisfied with their action during recovery. Some parents expressed regret regarding how they went about supporting their child's recovery feeling they could/should have done more but ultimately were satisfied with their role in recovery. Regarding continued sport participation, all parents reported being satisfied with their decision to support their child's return to sport, but also expressed fear of the unknown future. This indicates that while they may be satisfied with their decision, they are not entirely comfortable with it.

Thank You

Thank you again for your participation in this study. Please feel free to respond with any feedback regarding the summary of findings or any issues or concerns you may have with the findings represented here.

CURRICULUM VITAE

Candidate's full name: Cole A.E. Wight

Universities attended: Bachelors of Recreation Management Degree, Langara College,

2016

Recreation and Sport Management Diploma, Vancouver Island

University, 2014

Event Management Program Certificate, Vancouver Island

University, 2012

Publications: None

Conference Presentations: None