

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

Concussion to Classroom: Post-Concussion Academic Reintegration
of Collegiate Club Sports Athletes

A dissertation submitted in partial fulfillment of the requirements
For the degree of Doctor of Education in Educational Leadership

By

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Dedication

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Abstract

Post-concussion Academic Reintegration of Collegiate Club Sports Athletes

By

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Doctorate of Education in Educational Leadership

Sports-related concussions have raised great interest and concern as a significant worldwide health issue. This phenomenological case study gathered the personal perspectives of college club sports athletes at a western four-year public university about their recovery and rehabilitation post-concussion. This rarely studied yet growing population of student-athletes shared details about the challenges they faced during the transition from concussion injury to the classroom. Ten athletes from high impact sports of soccer, rugby, ice hockey, and wrestling participated in this qualitative study. In addition, four interviews with on campus service providers and a review of documents related to the processes of Return to Play and Return to Learn, brought context to the accessibility of resources for these students.

Two theoretical frameworks were combined in the design of the study and data analysis, transition theory and resiliency. Schlossberg's Transition Theory and its 4S

factors of self, situation, support, and strategy assisted in the analysis of how club athletes coped with unexpected changes in their daily life. Resiliency was utilized to explore how students drew upon external and internal resources in a positive manner when coping with adversity.

The study revealed that although campus resources were accessible, most of the student-athletes did not seek formal academic support unless it potentially impacted their grades. Underutilized support included accommodations offered through the Disability Resource Center. Many research participants considered their brain injury “no big deal” and developed compensatory strategies to keep up with the responsibilities and expectations of student life.

Post injury procedures focused more on return to play and less on return to learn. However, participants expressed difficulties with attention, memory, information processing, and organization. A more integrated approach is recommended which monitors physical and cognitive demands plus behavioral and sleep concerns during return to school and sport. A recommended pathway for incorporating post-concussion support and strategies during the transition from injury to the classroom is provided along with a list of suggested learning strategies. Overall, the research highlighted the need for more concussion education, opportunities for inter-professional collaboration, and the potential of an inter-professional alliance on college campuses for this multifaceted health issue.

Chapter 1: Introduction

Sports-related concussions (SRC) have received increased attention in the United States as seen by news headlines (Hotz, 2016; Park, 2016), legislation in all 50 states and the District of Columbia addressing this issue (Albano, Senter, Adler, Herring, & Asif, 2016), high profile lawsuits (Perez, 2016; Strauss, 2016), investments in research and development (New, 2014; Serhan, 2016) and a recent movie about professional athletes suffering complications from concussions (Tucker, 2014). More importantly, concussions have been recognized as a public threat to the safety of our country's youth, a major public health concern (Bramley, Patrick, Lehman, & Silvis, 2012; Buck, 2011), and "one of the signature health issues of the time" (Barth & Broshek, 2015, p. 127). Sports-related concussions have become the subject of great importance over the past two decades in scientific research, congressional hearings, conferences, and international concussion consensus meetings (Tucker, 2014).

Educational Issue

Increased research on traumatic brain injury (TBI) such as concussions has led educators to study the effects of brain injuries on student-athletes and their academic performance, learning, and behavior at the high school and collegiate level (Arroyos-Jurado & Savage, 2008). However, educators still lack awareness of the various challenges in providing educational and social support to students with traumatic brain injury (Mohr & Bullock, 2005). After all, signs and symptoms of concussions may impact the student-athletes both in and out of athletic competition (Williams, Welch, Parson, & McLeod, 2015). Post-concussion symptoms such as headaches, nausea, light and sound sensitivity, fatigue, impaired concentration and memory, mental foginess, and

slowed processing speed have the potential to impede academic performance (Laker, 2015; Ransom et al., 2015). Furthermore, engaging in challenging cognitive activities after a concussive injury may worsen symptoms and later interfere with learning or result in additional school absences (Majerske et al., 2008; Ransom et al., 2015). “Successful school reentry following traumatic brain injury (TBI) is critical to recovery” (Deidrick & Farmer, 2005, p. 23).

Students with TBI face challenges that are acquired rather than developmental and consequently have to cope with differences with pre and post-injury in self-perception, learning styles, and abilities (Ylvisaker et al., 2001). Since the disability has a hidden nature and may not be apparent to others, students also contend with inaccurate expectations of their capabilities (Hux et al., 2010). Cognitive weakness associated with TBI can interfere with learning new information resulting in difficulty keeping up with academic coursework and a corresponding decline in test scores and achievement over time (Deidrick & Farmer, 2005; Ewing-Cobbs et al., 2004). For college students, attending fewer classes, scheduling rest periods during the day, reducing note taking, and keeping test taking to a minimum until symptom free would help them slowly transition back to school (Kennedy, 2017). Studies have shown that concussion management guidelines for student-athletes often fail to incorporate guidelines for return to sport, return to school, and home functioning (Williams et al., 2015).

Concussion Management and Legislation

In recent years, more studies tracking concussion management and support have emerged in order to diagnose, treat, or accommodate athletes in the school setting (Arroyos-Jurado & Savage, 2008; Halstead et al., 2013; Laker, 2015; McGrath, 2010;

Porter, Constandtinidou, & Marron, 2014). In collegiate sports, concussion management involves a variety of stakeholders and is a multifaceted and complex process (Baugh et al., 2015). As part of concussion management, education and prevention should be included to help student-athletes identify the signs and symptoms of a concussion that warrant appropriate medical care (United Educators, 2014). In order to support the injured athletes, concussion management is essential so that the brain injury can be properly identified and treated (Halstead et al., 2013; McGrath, 2010). In the past, athletes who did not lose consciousness were put at risk by often being allowed to play through their injuries (Faure, 2010). For college students, the ability to return to the classroom quickly depends upon careful monitoring of their symptoms as part of a concussion management program since they present with “unique challenges that college personnel and disability service specialists have not traditionally faced” (Kennedy, 2017, p. 32). Overall, increased public concern about the impact of concussions has resulted in some kind of oversight or governance.

All 50 states in the United States and the District of Columbia have enacted concussion legislation aimed at preventing mild traumatic brain injuries and the potential of long-term complications from these injuries (Albano et al., 2016). Until 2009, no laws necessitated concussion reporting, documentation, and management of concussions until the Lystedt Law passed in the state of Washington after a junior high school football player suffered a devastating head injury and permanent disabilities when he was allowed to return to the game following an initial concussion (Bompadre et al., 2014). The Lystedt Law which has been the model for other state legislation follows three principles: (1) athletes suspected of sustaining a concussion, must get medical clearance from a

healthcare provider trained in concussion management before returning to play including games, practices, and training (2) guidelines and educational training by school districts and interscholastic associations on concussions and youth safety for coaches, athletes, and parents/guardians (3) removal from play at the time of the suspected injury and no same-day return to play eligibility (Bompadre et al., 2014; Albano et al., 2016). Since the Lystedt law passed, the number of documented concussions more than doubled, perhaps attributable to heightened awareness and closer concussion monitoring (Bompadre et al., 2014). However current concussion laws patterned after the Lystedt law only cover youth sports participants, age 18 or younger yet the traditional college age is between 18 and 25 years old (National Center for Educational Statistics, 2015) so these student-athletes are not considered. Furthermore, roughly one third of the state laws do not include specific information on which ages or grades are covered, according to an Associated Press analysis of state concussion laws and fewer than half have all the key components of the initial concussion bill passed in the state of Washington (Fendrich & Pells, 2015).

California enacted a law in January 2017 to extended the responsibility that schools had to remove athletes from play suspected of sustaining a concussion to include youth sports organizations. They must also comply with a graduated RTP protocol of no less than seven days under the supervision of a licensed health provider. Additionally, concussion and head injury educational materials or an information sheet must be provided on a yearly basis (California Legislative Information, 2017).

Higher education has also weighed in on concussion policies. In 2010, the National Collegiate Athletic Association (NCAA), an intercollegiate association

governing sports in member colleges and universities in the United States, instituted a concussion policy to educate student-athletes annually on concussion signs and symptoms and if students exhibit such behaviors, they must be removed from play and evaluated by medical staff (NCAA, 2016). It is anticipated that concussion education, especially for student-athletes, has the potential of reducing the health burden of concussions and modifying risk-related behaviors, which can result in cognitive impairment after a traumatic brain injury (Arroyos-Jurado & Savage 2008; Kroshus & Baugh, 2016). With regard to collegiate club sports however, a national peer standard for concussion management is lacking (Mermelstein, Liebau, & McKee, 2012). Without a national governing body for club sports or a health professional trained in concussions, some of the athletes are left to self-monitor injuries which leaves an unknown number unreported and undiagnosed. Since athletes have been reported to have a tendency to hide their concussions, this generates potential risks (Chinn & Porter, 2013). Furthermore, without proper training or personnel on hand, there may be some club athletes that are not accessing the necessary resources after a concussive injury.

Return to Play vs. Return to Learn

During a student athlete's transition from injury, much emphasis is placed on the timing of Return to Play (RTP) and less on Return to Learn (RTL) but both areas impact the ability to resume pre-concussion activities and are crucial for the rehabilitation and recovery process (Halstead et al., 2013). The terms, "Return-To-Learn" and "Return-To-Play" are self-explanatory phrases that are often found in literature about concussions (Carson et al., 2014). A step-by-step gradual RTP protocol has been universally adopted but currently no protocol has been adopted for RTL (Bera & McNulty, 2015).

The RTP protocol begins when a patient is symptom free for at least 24 hours and demonstrates normal physical and neurocognitive exams (Weinberger & Briskin, 2013). The five-step RTP rehabilitation protocol, developed at the 4th International Conference on Concussion in Sport held in Zurich, starts with no activity for 24 hours for recovery; followed by light aerobic exercise to increase heart rate; then sport specific exercise to add movement. Next is a progression to non-contact training drills for exercise and coordination, which leads to full contact practice after medical clearance and finally return to competitive play (McCroory et al., 2013). De Matteo et al., (2015) piloted a protocol for Return to School for children and youth following a concussion, which acknowledged that a comprehensive protocol needed to be designed specifically for the age group. The five graduated stages included brain rest, modifications, and finally a full return to normal routines including homework, testing, and extracurricular activities. There have been several similar versions of RTP and RTL protocols that have emerged since the beginning of this research study but have mainly been geared toward youth sports not collegiate level participants.

A study by Thompson et al., (2016) examined state laws governing school reintegration post-concussion with regard to Return to Learn (RTL). They discovered that although uncommon, RTL laws appeared in eight states: Illinois, Massachusetts, Maryland, Maine, Nebraska, New York, Virginia, and Vermont. Seven states have considered RTL legislation since 2015. All eight states with RTL laws required the establishment of a RTL protocol and two states, Illinois and Massachusetts, required the appointment of an RTL Coordinator but no specifics were provided on implementation at the district or school levels. The laws varied in scope and specificity but most held

schools responsible for RTL management. The researchers also found that none of the laws provided guidance on support for students with lingering post-concussive symptoms.

Statement of Problem

Current research on concussions has led educators to show concern about the TBI of student-athletes and their impact on academic performance (Arroyos-Jurado & Savage, 2008). Following a concussion, many students appear physically normal so most school officials often fail to address the needs for academic or environmental adjustments (Halstead et al., 2013). Upon returning to school, student-athletes rely on the educational system to provide the needed services and intervention to help them readjust and reintegrate into the academic environment (Bowen, 2005). Examples of these services include cognitive and educational interventions such as academic counseling, the use of compensatory aids (e.g., memory books, planners, tape recording, note takers, supplemental visual learning materials, and testing accommodations), and breaking down tasks into smaller manageable assignments (Arroyos-Jurado & Savage, 2008; Hux et al., 2010). Unfortunately, educators are not adequately trained in teaching compensatory cognitive and academic strategies involved in content learning for students with TBI (Ylvisaker et al., 2001).

A concussion may have obvious negative effects on short term and long term learning, and increasing evidence has shown that returning to the classroom prematurely may worsen symptoms and even prolong recovery (Halstead et al., 2013). Symptoms can last for a few days or a week but a more serious concussion can last for weeks, months, or even years (Centers for Disease Control and Prevention, 2015). Some experts contend

that concussions can last less than 72 hours and although most spontaneously resolve within seven to ten days, recovery can take longer for those with prior concussions (Scorza, Raleigh, & O'Connor, 2012). Cognitive rest is recommended three to five days after injury and patients are advised to scale down cognitive activity and then increase as tolerated (Mullally, 2017). Lingering symptoms can be physical, such as fatigue, imbalance, visual disorders, or headaches; cognitive, such as inattention, slow processing, word-finding problems as well as memory and learning difficulties; and also psychosocial, such as irritability, depression, anxiety, and anger (Kennedy, 2017). Although each concussion injury is unique, these lingering effects, may impact learning and the ability to keep up with the demands of the classroom. Overall, students with concussions have acquired difficulties due to injury, not developmental challenges, and often need to deal with the differences between their self-perception, learning abilities, and learning styles pre and post-concussion (Hux et al., 2010).

Educators can use instructional strategies such as incorporating repetition, emphasizing main points and key ideas frequently, and using multi-modal approach when presenting material and instructions, to support students with TBI who have difficulty with memory, attention, concentration, executive function, self-awareness, and language (Keyser-Marcus et al., 2002). With impaired cognitive functioning may come limited mental stamina so a gradual increase in activity is recommended as symptoms improve (Baker et al., 2014). Modifying the educational environment and coursework expectations may not be possible in a university setting which relates back to the challenges students athletes face when transitioning from the concussion incident back to the classroom.

Research Problem

This research study investigated the problem of academic preparedness in terms of the needs of concussed athletes. Gathering a collection of the student-athletes' perspectives on their concussion experiences brought forth a clearer understanding of the process of re-entry back to academia. This included a closer look at the supports concussed athletes needed, if they were in place, and whether or not they were accessed or useful during recovery.

One group of collegiate athletes inadvertently left out in the study of concussions is the club sports athlete. Club Sports programs are growing in popularity at several major universities across the nation (Pennington, 2008). They are non-NCAA affiliated, student-run organizations that provide students the opportunity to participate in intercollegiate sports. Although the teams vary in their skill level from recreational, instructional, to competitive play, sports clubs meet regularly for practices and competitions with other colleges. Among the teams sports included in club sports programs are baseball, basketball, and soccer, as well as cheerleading, boxing, ice hockey, rugby, lacrosse, wrestling, and volleyball— all sports with reported concussion injuries. Studying this group of students that engage in competitive sports provided information on how to provide post-concussion RTL services and resources to this growing population of recreational athletes on college campuses.

Research Purpose and Significance

The primary purpose of this research study was to examine the ways in which college club athletes viewed their post-concussion experiences as they returned to the classroom setting. The study explored the academic challenges faced by these student-

athletes after they experienced a sports-related concussion and the resources available to them. This information may be helpful to educators, healthcare providers, parents, coaches, and the athletes themselves.

Within the past two decades, there have been significant advances in the science of sports-related concussions, which has led to evidence-based guidelines for diagnosis, evaluation, and management (McCrea, Broshek, & Barth, 2015). In the past, there was no consensus on clinical concussion management or the best course of action (Duff 2009). Concussions were graded by severity as one, two, three and the number of concussions as first, second, or third (Duff, 2009). Currently, instead of a one size fits all approach, more individualized case management is recommended which takes into consideration factors such as circumstances unique to the injury, age, gender, stage of growth and development, and as well as any learning disabilities (Collins & Hawn, 2002; Meckler, 2014). Pre-injury learning disorders, mood disorders, attention deficit disorders, and migraine headaches can complicate diagnosis (Harmon et al., 2013). Experts agree that concussion management aligned with best practices and expert recommendations and guidelines should be implemented and practiced with consistency (Williams et al., 2015). Moreover, a successful concussion management requires that the team understands the neurocognitive and neurobehavioral symptoms related with sports concussions so that the athletes can succeed in returning to athletic, academic, and social activities (Porter et al., 2014).

Nationwide, training for coaches has focused on preventing and recognizing the signs and symptoms of concussions (Covassin, Kelly, & Sarmiento, 2012). Given that more attention has been placed on RTP rather than the students' RTL, the availability of

strategies used to help students with TBI when they return to academic life has been sparse. Greater focus has centered on diagnosis, stakeholder education, and safe return to physical activity rather than on the effects of concussions on learning, developing guidelines, and evidence-based recommendations for academic reintegration following concussive injury (Halstead, 2013; Williams et al., 2015). Since academic performance and achievement may be impacted by lack of resources or hampered by lack of information sharing and training, this study examined the needs of the athletes, what sources of support existed for the students, and determined what programs and or strategies provided at the university, contributed to academic success.

Research Questions

The following research questions guided this qualitative research study:

Main Research Question:

1) How do support services facilitate academic reintegration for club sport athletes at a regional public comprehensive university after a sport-related concussion?

The sub-research questions included:

Sub Research Questions:

2) What sources of support do club athletes use post-concussion during recovery and rehabilitation?

3) In what ways do the club athletes find these sources of support useful to them post-concussion?

Theoretical Framework

Borrowed from the field of counseling and psychology, Schlossberg's Transition Theory (Schlossberg, 1981, 1984, 2011) was used as a lens to investigate how club sports

athletes handled changes when they transitioned from concussion injury to the classroom and whether or not campus resources assisted in the recovery process. A transition was defined as “any event or non-event that results in changed relationships, routines, assumptions, and roles” (Schlossberg, Waters, & Goodman, 1995, p. 27). During unexpected transitions, people must integrate and deal with changes into their daily life (Schlossberg et al., 1995). This research study investigated how the athletes dealt with change through the four aspects of a transition as outlined in Schlossberg’s 4S System (Schlossberg et al., 1995). The 4S’s include the factors of self, situation, support, and strategies. The study also looked at whether resiliency played a role in the transitional period from concussion to classroom.

The first component of self looked at the student-athletes’ personal attributes and outlook and included personal characteristics, mindset, and self-image. Second, the situation factor examined the characteristics of the transition and how the person viewed its significance in terms of role changes, previous experiences, physical situation, and cognitive abilities. Thirdly, support referred to the resources available to the club sports athletes including social or academic support from family, friends, teammates, or the school, and whether or not support-seeking behavior took place. Finally, strategies were examined as actions that individuals chose in response to transitions for the purposes of coping, adapting, relearning, seeking information, and any inhibition of actions. Collectively, these areas helped explain the phenomenon about the transitions the student-athletes faced after their concussions.

Since athletes are known to often demonstrate resiliency in competition, the transition theory was coupled with a theory of resilience as it related to the period of

transition from trauma. Resiliency is a process to harness resources to sustain well being (Panter-Brick & Leckman, 2013) and a conscious effort to move forward in a positive way as part of reintegration of self and to cope with adversity (Southwick, Bonanno, Masten, Panter-Brick, & Yehuda, 2014). For the purposes of this post-concussion research study, resiliency focused on the external and internal resources used to cope and bounce back when faced with tough times (Nourse, 2015).

Overview of Methodology

A phenomenological case study approach was used in this qualitative research study conducted at Century, a regional public comprehensive university in the western United States. Ten club athletes who experienced concussions within one month to five years of the study participated in one-to-one interviews and were selected through a purposeful selection method. Pseudonyms were used throughout to protect the identity of all research participants and the school. Referrals were facilitated through the Athletic Trainers (AT) and the club sports office who have the most interactions with club athletes and the club sports leadership council. To provide additional perspectives to the study, individual interviews were also conducted on campus with the AT, student clinic physician, the Disability Resource Center (DRC) director, and the club sports manager who were identified by the program as the key players in concussion management at the university. The candid interviews were professionally transcribed and reviewed for accuracy. Through an inductive process, data was sorted into broad themes to further explore patterns and relationships. Lastly, a document review was performed on the club sports student-athlete handbook and orientation material for new club sports participants, and referral forms.

Study Limitations and Delimitations

Although this study attempted to address the subject of academic re-entry by college student-athletes after a concussive injury from the accounts provided by the research participants, this study may have been limited by each athlete's ability to recall details of his or her post-concussion experiences or to evaluate perceived difficulties. Additionally, the conversations with the AT, physician, and DRC coordinator, as service providers for student-athletes on campus, were representative samples of their overall involvement and supports. Due to their numerous interactions with concussed athletes, they were able to share patterns of behavior or experiences that offered a broader understanding of the transitions from concussive injury to recovery. Overall, this was a unique opportunity to conduct in-depth interviews with students and to gain their perspectives and feelings toward their own concussion experiences while as a researcher, maintaining an awareness of personal biases and assumptions (Peshkin, 1988).

Since this study was conducted on a college campus that has several resources not normally found on high school or elementary school campuses, the findings may or may not apply to those locations. However, service providers such as a school nurse, speech-language pathologist, school psychologist, and social worker may provide similar supports in those educational settings. Special education services and supports offered in the K-12 settings for students with TBI, which is considered a low incidence disability (Ylvisaker et al., 2001) were not discussed in this research.

Organization of Dissertation

Chapter one begins with an introduction to the dissertation with the problem statement, significance for conducting the study, research questions, the methodology, the

conceptual framework, possible limitations and delimitations of the study, and key terms. Chapter two presents a review of the literature, which has grown exponentially within the last year alone. Three years ago when this dissertation study began, information on concussions was scarce. Since then, news accounts of both professional and amateur athletes with sports-related concussions and research related to concussions appear weekly in the media. The most recent data and studies related to this topic were incorporated.

The methodology section in chapter three highlights data sources, data collection instruments and procedures, the role of the researcher, as well as analysis procedures. In chapter four, research results and findings were presented in context of the theoretical framework to answer the research questions. Chapter five presents conclusions about the research findings, a discussion of the implications for action, and recommendations for future practice and research. References and appendices are added at the end.

The following are key terms used in this dissertation study:

Key Terms

Athletic Trainer (AT): are health care professionals who provide preventative services, emergency care, clinical diagnosis, therapeutic intervention and rehabilitation of injuries and medical conditions. They provide medical services to all types of patients, including athletes to improve functional outcomes and specialize in patient education to prevent injury and re-injury. ATs conduct on the field and sideline assessments of concussive injury (National Athletic Trainers Association, 2016).

Concussion: A type of mild traumatic brain injury (TBI) that may come from a fall, blow or bump to the head or body that shakes or jars the brain inside the skull. It usually

results in a rapid onset of signs and symptoms due to biomechanical forces that are transmitted to the brain (Centers for Disease Control and Prevention, 2016; Weinberger & Briskin, 2013).

Disability Resource Center (DRC): A campus resource center that offers services to students with physical or mental health disabilities with any necessary accommodations and support according to their individual needs. Counselors help students with disability-related functional limitations with transition and academic support to gain access to the classroom, class materials, and campus services. Examples include audio recording, electronic note takers, any necessary accommodations for taking exams, and providing alternative ways to fulfill course requirements.

Post-concussion: Period of recovery and rehabilitation after a concussive injury. Symptoms may last a few days, a week, or longer. The effects of a concussion can alter brain function, cognition, physical, emotional, and sleep patterns (Mohr & Bullock, 2005).

Return to Learn (RTL): Refers to student's returning to the classroom after a concussive injury while still symptomatic. Since each concussion is unique an individualized approach is recommended for any academic adjustments, accommodations, or modifications (Halstead et al., 2013).

Return to Play (RTP): Refers to athletes' ability to resume sport activities after a concussive injury using a systematic graduated system (Laker, 2015).

Speech-Language Pathologist (SLP): SLPs prevent, assess, diagnose and treat speech, language, social communication, cognitive-communication, and swallowing disorders in children and adults. They work in a variety of settings including schools, hospital,

rehabilitation care centers and in private practice (American Speech-Language-Hearing Association, 2016; California Speech-Language-Hearing Association, 2015). SLPs work in the remediation of brain injury and can play a role in the interdisciplinary team providing prompt and appropriate concussion management (Salvatore & Fjordbak, 2011; Porter et al., 2014).

Sports-related concussions (SRC): A term used to describe a common injury that occurs in all ages and in all sports. It is a form of mild traumatic brain injury (TBI) (Laker, 2015; Weinberger & Briskin, 2013). The terms concussion and mild traumatic brain injury are often used interchangeably in clinical literature (Salvatore & Fjordbak, 2011).

Traumatic Brain Injury (TBI): An acquired medical condition related to a trauma or external force to the brain which results in partial or total function disability or psychosocial impairment or both (Aldrich & Obrzut, 2012). A concussion is a closed-head injury and has been referred to as a mild traumatic brain injury that “causes a sudden change in mental status” (Mullally, 2017, p. 886).

Chapter 2: Literature Review

Chapter two contains a comprehensive review of the literature on the academic reintegration of student-athletes after a concussive injury, also known as RTL (Halstead et al., 2013). The mediating factors, such as available campus resources and supports, which may influence student-athletes' transition into the classroom, are the focus of this dissertation. The literature review begins with information about club sports athletics and the population of students who are the subjects of this study. Next, a discussion about concussion signs and symptoms and post-concussion treatment, as well as concussion management and current laws and policies follows. In addition, the literature looks at the mindset and culture surrounding athletes who often play through pain under the guise of "toughness." Perhaps more critically, this review explored the role of educators in providing concussion education and awareness and meeting the needs of student-athletes after a sports-related concussion. Lastly, the literature provides additional details on the conceptual frameworks of transition and resilience that guided this study and provided a lens for analysis.

No doubt, the growing concern on the long-term effects of concussion injuries of professional athletes has brought the problem to an international forum. Research on sports-related concussions has helped to guide and improve decision-making to ensure the safety of student-athletes and to create a culture of safety (Hunt & Asplund, 2010; Kroshus & Baugh, 2016). However, much of the research literature has focused on the signs and symptoms of concussions and the timing of a safe RTP. There is not as much literature on the adverse affects of concussions on learning and the academic performances of children, teens, and college students as they return to the classroom

(Bera & McNulty, 2015; Halstead et al., 2013). Additionally, most concussion management guidelines for students have failed to include information about functioning at school and home (Gioia, Schneider, Vaughan, & Isquith, 2009). Overall, a need exists for widespread concussion management, education, public awareness, and attention to formal policies and procedures supporting the student-athlete's role as a student during recovery (Sady, Vaughan, & Gioia, 2011). The literature raises important questions on how college campuses can address and coordinate resources based on the challenges students with sports-related concussions face. Concussed students endure some predictable challenges academically in the days and weeks post-concussion and a more coordinated effort with school personnel can help minimize the academic consequences of injury (McGrath, 2010).

Within the past few years, various studies have emerged which relate to concussion management and supports, academic accommodations, and the effects of a concussion on student learning (Carson et al., 2014; Faure, 2010; Halstead et al., 2013; Sady et al., 2011). McGrath (2010) outlined a framework for school athletic trainers in managing the academic and health needs of student-athletes with concussion injuries. A clinical report from the American Academy of Pediatrics by Halstead et al., (2013) addressed possible factors which may lead to difficulties in a school environment post-concussion and emphasized the need for a more integrated concussion management effort with collaboration stemming from teams of stakeholders including medical, school, and family.

However, few empirical studies include post-concussion experiences from the athletes' perspectives as they return to academic rigor on the collegiate level. Most of the

personal stories about concussed athletes have come from news accounts on television, in print, websites, or blogs. Despite increased concussion research, few studies are qualitative in nature with case studies highlighting the experiences of the athletes themselves. Hardly any information exists about the individual concussion experiences of college club sports athletes who engage in competitive sports. There is a gap in research pertaining specifically to club sports, which is detailed in the next section.

Club Sports

Club sports have grown in massive popularity on college campuses across the country (Lifschutz, 2012). They range from recreational to elite competition. Many club sports teams attract high-performance athletes who compete with other institutions in regional and national championships (Pennington, 2008). The club sports model is a phenomenon that has gone relatively unnoticed but draws students who want to balance academics, athletics, and a social life while in college (Pennington, 2008). A review of club sports athletics reaped little research data; information was more sport-specific such as rugby or soccer.

According to Blumenthal (2009) a former executive director of the National Intramural-Recreational Sports Association (NIRSA), recreation sports and wellness programs on college campuses have grown exponentially. Although intramural sports involving competition within campus are most widely recognized, the student organized sport clubs provides opportunities for leadership development and learning (Blumenthal, 2009). One study examined college recreational sports and its impact on student learning and discovered that through participation in club sports, athletes gained life skills, appreciation of diversity, leadership, and school pride (Haines & Fortman, 2008). A

separate study surveyed females in Australia who engaged in sport clubs, gymnasium-based programs, or leisure walking, and found that engaging in club-based sports such as tennis contributed to health-related quality of life and positively impacted physical, social and mental well-being (Eime, Harvey, Brown, & Payne, 2010).

The New York Times reported there are an estimated two million students who participate competitively in club sports (Pennington, 2008). Although they do not garner the prestige or exposure given varsity sports, they contribute to student pride in a college institution (Lifschutz, 2012). A survey study at a mid-size public university found a strong positive correlation between freshman grade point average and participation in college recreational activities, which included club sports (Gibbison, Henry, & Perkins-Brown, 2011). The study suggested that recreational opportunities compliment the university's academic mission. Furthermore, in a survey study conducted at a southeastern university involving 2,500 students, undergraduate and graduate students acknowledged perceived benefits of participation in campus recreation programs and facilities on academic, health, and social life (Henchy, 2013). In a similar study, Haines & Fortman (2008) found student benefits included sports skills, fitness, stress reduction, and feelings of physical well-being.

Club Sports are so popular that many clubs organize tryouts, cuts, and even waiting lists (Pennington, 2008). In comparison, the National College Athletic Association (NCAA), one of the largest and most well-known sports associations, represents 480,000 student-athletes and 1,121 colleges and universities (NCAA, 2016). The National Association of Intercollegiate Athletes (NAIA) represents 65,000 athletes at more than 250 member colleges (NAIA, n.d.). Based on the 2008 figures, club sports

athletes represent more than four times as many NCAA athletes. Despite their growing popularity on college campuses this population has not received much attention in concussion research. Figure 1 clearly depicts the disparity in the numbers of student-athletes engaged in club sports versus the elite NCAA and NAIA programs. Although the population figures come from different years based on available data, they show the difference between the three college athletic groups in terms of the number of students involved in each program.

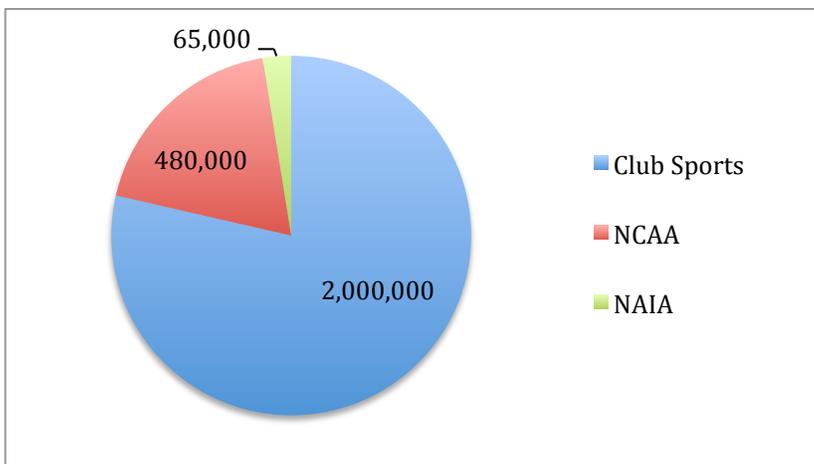


Figure 1. Student-Athlete Population by Program Affiliation

Club sports vary on college campuses and are not bound by a single national governing body (Mermelstein et al., 2012). Each club however, may affiliate with a national organization specific to their sport to access tournaments and help with scheduling and rules. For example, the National Intramural-Recreational Sports Association known as NIRSA, represents specific recreational and club sports teams such as soccer, basketball, volleyball, softball, and flag/touch football (NIRSA, 2015). In many cases, governing bodies require athletes to have a minimum 2.0 grade point average in order to participate in nationals (Pennington, 2008). Campus student associations, not athletic departments, often oversee club sports programs and allocate

money to the clubs that request for funds. Currently, there are about 1000 students playing about 30 team sports at the university in this study.

College club sports often rely on student leadership and management to shape the team. Students organize everything from uniforms to travel arrangements and hiring officials (College Board, 2016) so a team captain becomes more of a team manager. The collegians do not receive scholarships to play, and function with minimal leadership from adults (Pennington, 2008). The teams receive some financial support from their college or university, but rely on team dues, their own fundraising, community sponsorship, and required volunteer hours. Dues can range from \$50 to more than \$1,000 for expensive sports such as ice hockey (Pennington, 2008). Among the many sports represented are baseball, boxing, ice hockey, lacrosse, rugby, soccer, cheer, and wrestling; some of these high impact and contact sports are known to have concussion injuries (Lincoln et al., 2011). An additional consideration in club sports is the potential concussion risks of rookie athletes who may be relatively new to the sport, and may lack improper preparation, strength, skills, or techniques for the demands of the sport (B. Birmingham, personal communication, December 2, 2015). Discussions about the health and safety of athletes have been a long-standing concern.

Historical Perspective

To put this subject in historical perspective, after the 1905 college football season, President Theodore Roosevelt took action when 19 football athletes were killed and over 137 suffered serious injuries, by forming the intercollegiate conference, the forerunner of the National Collegiate Athletic Association, to establish rules for safer athletic competition (Kelly & Rosenberg, 1997). In the early 1900's, players did not wear

helmets and used their heads like battering rams (Klein, 2012). Since then, rule changes, improved sports protective equipment, and coaching techniques emphasizing injury prevention have helped reduce the incidence of traumatic brain injury (Kelly & Rosenberg, 1997).

Information and education about the effects of concussions have steadily grown in the past few years since several professional and amateur athletes have publicly discussed their conditions and the debilitating effects of repeated head injuries. In the movie *Concussion* (2015), actor Will Smith plays Dr. Bennet Omalu who discovered the association between concussions and brain damage in American football players who suffered from chronic traumatic encephalopathy (CTE). The disease caused chronic brain damage, depression, and the eventual suicide of National Football League (NFL) players such as the beloved Junior Seau at age 43. Sportscaster and NFL Frank Gifford who died at 84 of natural causes, also suffered the effects of CTE. Their brains were donated to advance medical research. Several collegiate and professional athletes have retired early from their respective sports due to the mounting evidence of long-term effects of recurrent concussions (Guskiewicz et al., 2003). To better understand concussions, a definition and information about the signs and symptoms are presented next.

What is a concussion?

A sports-related concussion was commonly associated with “having one’s bell rung”, being “knocked out,” or experiencing a loss of consciousness (Theye & Mueller, 2004). Athletes were often instructed to “shake it off” and get back out to the competition since concussions weren’t considered serious injuries (Cummings, 2016). In

fact, a loss of consciousness does not need to occur to get a concussion (American Academy of Neurology, 2013). Most sports-related concussions are categorized as mild traumatic brain injuries and greater than 90 percent of young athletes never lose consciousness (Cummings, 2016).

The Centers for Disease Control and Prevention (CDC) (2010) defines a concussion as a type of traumatic brain injury (TBI) that may come from a jolt, bump or blow to the head, or hit to the body that causes rapid back and forth movement to the head and brain. The brain is a soft jelly-like organ protected by the bones of the skull and a cerebral fluid that surrounds it to absorb the shock of injury (Cummings, 2016). During the trauma, it could twist or bounce in the skull due to sudden movement, which may stretch or damage brain cells, create chemical changes in the brain, and induce an alteration of mental status (Brain Injury Association, 2015). The chemical changes can lead to symptoms which affect a student's cognitive, physical, emotional, and sleep functions and the brain becomes more sensitive to increased stress or injury until it fully recovers (Centers for Disease Control and Prevention, 2010).

According to the Centers for Disease Control and Prevention (2012) an estimated 1.6 to 3.8 million people experience traumatic brain injuries (TBI) every year in the U.S. related to sports and recreation, including concussions. However, Bryan, Rowhani-Rahbar, Comstock, & Rivara (2016) reported that this often cited estimate was based on a 1991 National Health Interview Survey Injury Supplement that defined TBI "as an injury with loss of consciousness, then inflated the number using estimated proportion of concussions without loss of consciousness" (p. 2). Their study used three national databases to determine that the incidence of sports and recreation-related concussions in

the U.S. at about 1.1 to 1.9 million annually in children aged 18 years or younger. A more precise estimate of sports related concussions in the U.S. for those 19 years or older, which includes college age students, is unavailable.

Harmon et al., (2013) indicated that the true number of concussions is likely higher than reported because some injuries have gone undocumented. Plus, with greater concussion awareness and state legislation, reported incidences are anticipated to rise. Recently, the CDC announced a commitment to build a National Concussion Surveillance system to address and monitor this public health problem more closely (Centers for Disease Control and Prevention, 2017).

The American Academy of Neurology (AAN) stressed that concussions are a serious health issue which impacts athletes of all ages, genders, and every type or level of sports and that injured athletes should receive a clinical evaluation to assure they are not at risk for health problems. Recently, the AAN updated evidence-based guidelines and recommended that players suspected of concussions be removed immediately from play, evaluated by a licensed health care professional trained in concussion, and that they return to play slowly after acute symptoms disappear (Giza et al., 2013). The study warned that the first ten days after a concussion is the period of greatest risk for another concussion (Giza et al., 2013).

Students from ages 15-19 who are preparing for or in college, are in the highest risk group for sustaining traumatic injuries (Hux et al., 2010). This was confirmed in a 2016 study conducted by Fair Health, a company with a privately billed health insurance database of over 20 billion Americans. They reported that concussion diagnosis in youth sports rose by 500% from 2010 to 2014 for youth under the age of 22 and that most

concussions occur in the months of September and October (Gelburd, 2016). Another national health insurance provider, Blue Cross and Blue Shield, reported the percentage of patients diagnosed with concussions nearly doubled between 2010 to 2015 based on medical claims during that period and that concussion diagnoses increased by 43% over the six-year span and spiked by 71% in patients ages 10 through 19 (Valentine, 2016).

The CDC (2010) and the Brain Injury Association (2015) also concur that 15-19 year olds are at the highest risk for concussion; males more than females. In adult athletes, concussion consequences may include potential long-term behavioral changes, post-concussion syndrome, and chronic traumatic encephalopathy (CTE) (Robbins et al., 2014). Some studies have linked concussions with an increased risk in developing neurodegenerative diseases such as Alzheimer, CTE, and Parkinson disease (Porter et al., 2014).

Post-concussion signs and symptoms

Student-athletes who experience concussions may present with specific symptoms, which impact their ability to perform academically at pre-concussion levels (Duff, 2009). Concussion symptoms can linger anywhere from hours to several months or years after an injury regardless of the severity (Faure, 2010). The effects of a concussion or traumatic brain injury (TBI) can be categorized under three domains (1) physical, (2) cognitive and (3) psychosocial, which can cause difficulties at school. Psychosocial effects may include a combination of social, emotional, and behavioral changes impacted by the stress and anxiety of rehabilitation and recovery (Mohr & Bullock, 2005). Chemical changes in the brain resulting from a concussion can lead to symptoms that affect a student's cognitive, physical, and emotional state and sleep patterns. The Brain

Injury Association of America (2015) listed the following common issues experienced after a concussion into four categories – cognitive, physical, emotional, and sleep (Table 1).

Table 1

Common Issues Experienced After Concussions

Cognitive	Physical	Emotional	Sleep
In a "fog"; can't think clearly	Headache	Sad	Sleeping more
Can't follow conversations	Post-traumatic amnesia (can't remember injury)	Easily irritated	Trouble falling asleep
Trouble with attention/concentration	Nausea	Anxious	Not sleeping soundly
Difficulty learning new information	Dizziness	More emotional than usual	Sleep cycle disturbed
Word finding problems	Sensitivity to light/sound	Changes in personality	Not feeling rested after sleep
Slowed reaction times	Fatigue	More impulsive	N/A

Note. From Brain Injury Association of America (2015). Concussion Information Center. Retrieved from <http://www.biausa.org/concussion/concussion-information-center>.

An American Academy of Pediatrics clinical report indicated that following a concussion, common symptoms include headaches, nausea, dizziness, light and noise sensitivity, sleep disturbance, and depression (Halstead et al., 2013). Additionally, visual problems, as well as memory, attention, focus, and difficulty concentrating or remembering previously learned material may also occur which present a challenge to students' day-to-day functioning and their ability to keep up with academic demands (Halstead, et al., 2013). In a review of the literature on the effects of football-related concussions and Return to Play preventative measures, Johnson (2012) indicated that concussions can result in deficits in concentration, reaction time, processing speed, and executive function which may impact skills and recovery. The diffuse injury to the brain

may also impair communication abilities and impact remembering and learning new information (Kennedy, 2017).

Concussion symptoms range from mild to severe and require immediate attention (Acosta, 2015). When these students return to the classroom they may experience short term to long-term changes in cognition and behavior, which may impact their academic performance, so academic difficulty may be short term or long term during the period of recovery (Schilling & Getch, 2012). Patients can also suffer sensory deficits, and thinking and reasoning skills can be affected (Helms & Libertz, 2014). Placing demands on a concussed brain could worsen symptoms, add additional stress to the brain, and even prolong recovery (Halstead et al., 2013; Majerske et al., 2008; Sady et al., 2011). Increased cognitive and physical activity before complete recovery and before restoring brain cellular function could impede learning and school-based functioning (Meckler, 2014).

In a retrospective study by Majerske et al., (2008) involving 95 student-athletes up to 33 days post-concussion, researchers found that athletes who participated in high intensity activities post-concussion, rather than moderate levels of activity, demonstrated poor neurocognitive performance. The study measured verbal memory, visual memory, visual motor speed, and reaction time to evaluate the relationship between symptoms and neurocognitive recovery and recommended that students need to strike a balance between exertion and cognitive rest during recovery. More importantly, a well-supported student can focus on resting and recovering without having to spend excess energy on trying to keep up with their academic workload, fighting for accommodations, or becoming anxious about whether their grades would suffer” (Sady et al., 2011, p.13).

Although physical rest has historically been the treatment for mild TBI, mental or cognitive rest is also essential for a student to function at school (Sady et al., 2011). Researchers found that gradually returning to cognitive activity is recommended to decrease recovery time from a concussion (Carson et al., 2014; McLeod & Gioia, 2010). This is especially true in the days just after the concussion, since activities that require concentration and attention may worsen symptoms and lengthen recovery (McCrory et al., 2013). The Centers for Disease Control and Prevention (2014) recommended gradual return to daily activities such as school and work upon approval by a health care professional and only when symptoms reduce significantly. This study recognized and highlighted attention to the concussed student athlete's return to the classroom versus their return to the field.

Concerns for Educators

There lies a lack of consensus among physicians and certified athletic trainers on how to evaluate and treat athletes with concussions (Halstead & Walter, 2010). However, on college campuses, besides sports physicians, athletic trainers are the most knowledgeable personnel who can evaluate and monitor athletes who have suffered concussions (Leuke, 2011). Since some students may appear physically well after a concussion, school officials and peers may not realize or fully understand the extent of deficits experienced by these athletes and often overlook the need for academic or environmental adjustments (Halstead et al., 2013). Unfortunately, a traumatic brain injury is not as visible to the eye as a cast, crutches, stitches, or swelling and is considered an "invisible injury" because damage occurs internally (Bloom, Horton, McCrory, & Johnston, 2004). That lack of external proof of injury may also affect a

student's sense of inadequacy "with concerns of being viewed as weak or faking the injury" (Chinn & Porter, 2013, p. 410). Medical tests such as CAT scans and MRI's, which look at the structure of the brain do not detect concussions, which impact the function of the brain. This is the reason why detecting and diagnosing concussions can be challenging (Centers for Disease Control and Prevention, 2014). According to an expert panel of physicians that reviewed published articles on concussion management, an additional consideration is that prolonged school absence can be detrimental and may result in social isolation, depression, anxiety and loss of academic standing (DeMatteo et. al., 2015).

To understand educator's perspectives about working with students with traumatic brain injuries and the adequacy of training resources for educators, Mohr and Bullock (2005) gathered two focus groups consisting of 15 professional educators including special education teachers, diagnosticians, and behavior specialists. They concluded that although existing concussion literature provides practices for educators, dissemination of valuable information has not been effective and that lack of training and information regarding TBI deters collaboration, sets a student up for failure, and inhibits educators from providing possible support to students and their families. Details such as making a symptom checklist with information about pre-injury conditions like learning disabilities, or attention deficit hyperactivity disorder, or depression can help educators monitor a student's recovery and identify or target any necessary interventions (Halstead et al., 2013).

Unlike the K-12 setting, college students do not have the benefit of a coordinated Individualized Education Plan under the Individuals with Disabilities Education Act,

which includes a separate category for traumatic brain injury (Mohr & Bullock, 2005). The more college and university educators know about brain injury and the difficulties students face, the better schools can assist students who struggle with accessing the curriculum. Concussion symptoms may vary from person to person and even in the same student who experiences more than one concussion (Halstead et al., 2013).

Gauging a student's state of well being and performance is essential to recovery but may not be an easy task if educators are not aware of the signs and symptoms to look for in students with concussive injuries. Raising awareness of the struggles students with TBI face when returning to a full academic load, would assist the academic community, including professors and coaches, to understand and better serve the students as they recover from the traumatic brain injury. Educators need to understand that students recovering from concussion injury may not be able to keep up with the usual expectations for homework completion or class participation until symptoms have cleared and neurocognitive function has recovered to normal (McGrath, 2010).

Concussion Education and Awareness

Concussion education and safety campaigns, including the Centers for Disease Control and Prevention's HEADS UP initiative, have been developed to educate the public including parents, coaches, teachers, and athletes about sports-related head injuries in youth sports (Centers for Disease Control and Prevention, 2015). Those who would benefit from knowing more about implementing accommodations and learning strategies for students with TBI would include the injured athletes, caregivers, educators, academic advisors, educational administrators and staff working in offices for students with disabilities, and researchers in related fields (Hux et al., 2010). Inadequate knowledge

about concussions can become a barrier in making appropriate return to school decisions post-concussion (Meckler, 2014). Implementation of concussion education is left up to each college institution and many have required concussion education at all sports levels (Kroshus & Baugh, 2016).

In a recent study involving 789 athletic trainers and 325 collegiate athletes from four schools in the New England region, Kroshus and Baugh (2016) discovered that there exists a high degree of variability in the information and material distributed and how the data is communicated and received by athletes. The study discovered that the source and delivery modalities of concussion education varied with most coming from a formal meeting or lecture (77%) or with written materials (75%), followed by video (31%), directions to online materials (21%); and hanging a poster (20%). Athletic trainers and physicians were the most involved in providing concussion information but 40% of athletes indicated that they wanted concussion safety information to come from their team coach so they know that the coach knows and endorses the information (Kroshus & Baugh, 2016).

In a qualitative review of concussion education literature and knowledge transfer, Providenza et al., (2013) concluded that concussion education should meet the needs of the population and be delivered in a manner appropriate to the specific audience. Understanding the needs and priorities of student-athletes may be difficult since some might not accurately communicate their true needs. The study also mentioned that traditional methods of providing concussion information and advice such as printed materials and face-to-face meetings should be augmented by websites and social media efforts. Kroshus and Baugh (2016) suggested that delivery of concussion education,

which usually comes from physicians and athletic trainers, should include coaches who play an important role in establishing a team's culture of safety. It follows then that coaches need to be appropriately educated on concussions guidelines as well as Return to Learn considerations.

In order for a sports team to have shared values about concussion safety practices and procedures, it is important to clarify and shape team norms through discussion and concussion education (Kroshus, Garnett, Baugh, & Calzo, 2015). In a study on the underreporting of concussion symptoms by soccer players, researchers found the likelihood of athletes reporting concussion symptoms increased when they had received concussion training on the risks associated with concussions (Bramley, et al., 2012). The study revealed that athletes with concussion education would more likely report concussion symptoms to their coach and thereby reduce the risk of potential further injury.

The benefits of participation in sports are many and outweigh the risk of concussions but preventative measures are recommended to decrease the rates of concussive injuries (Gessel et al., 2007). After sports injury, most college athletes will likely rely on social support from significant others within their sports network to deal with their injuries and pain, if they seek social support at all (Nixon, 1994). Classroom strategies are available for students with traumatic brain injuries but there appears to be lack of knowledge or application while transitioning students from injury to rehabilitation. Table 2 highlights teaching and learning academic strategies for students with TBI to assist with the cognitive impairments of attention, memory, organization, and writing and information processing speed (Bowen, 2005). One column highlights the

external aids that may help students while learning and another provides educators with suggestions on how to help students adapt while in the classroom. Such strategies could also be considered a form of concussion education for those struggling in these areas post-concussion.

Table 2

Compensatory Aids and Strategies for Students with Traumatic Brain Injury (TBI)

Cognitive impairment	External aids	Teaching/learning strategies
Attention	Use FM unit or earplugs. Use a timer or alarm to focus attention. Place symbol or sign in an obvious location to remind student to attend.	Keep assignments and instructions simple and direct. Provide rest periods, breaks, or physical activity. Minimize distractions. Divide work into small sections. Use verbal, gestural, or visual cues to remind student to attend. Ask student to repeat or summarize instructions. Slow pace of instruction
Memory	Use checklists, post-it notes, 3 x 5 cards. Keep appointment calendars, planners, electronic organizers, or dry-erase boards. Use memory log or card with personal information, map, schedule, etc. Set a timer or alarm to remind when a task needs to be done. Keep items in one designated location. Use tape recorders to review information. Provide photocopies of textbook pages for student to practice highlighting skills.	Ask student to repeat new information several times. Teach the use of visual imagery. Teach the use of mnemonic strategies. Simplify information to be remembered. Break each task into steps and teach each step separately. Teach study skills, note-taking techniques, and self-questioning. Test using multiple-choice format. Use fact cards and cue sheets to help recall. Teach student to rehearse or review notes immediately (within 1 hr.) after class.
Organization	Display pictorial or visual schedule of activities. Provide checklist with steps for completing tasks, or written outline of class lectures. Use a binder with subject sections and homework pockets. Use daily planner to record homework assignments. Use colored lines, highlighting, color-coding as cues for organization. Use graphic organizers to sequence thinking (time lines, outlines, flow charts, etc.).	Review daily routines with student. Teach use of student planner and cue student to record assignments in planner. Designate specific locations to turn in assignments/homework, use picture cues, or labels to identify place. Assign a peer buddy to assist with routines.
Writing and information processing speed	Use of tape recorders to record answers. Assign a peer note taker to take carbon paper notes. Use assistive devices such as a word processor, Dictaphone, or peer scribe.	Reduce amount of written work that is required and focus on mastery of critical information. Allow extra time to complete work or to verbally respond. Provide alternative forms of test taking. Enlarge the print on worksheets. Provide a make-up period at the end of the day. Present visual or verbal information at a slower pace.

Note. From “Classroom Interventions for Students with Traumatic Brain Injuries,” by J. Bowen, 2005, *Preventing School Failure: Alternative Education for Children and Youth*, p. 38. Copyright 2005 by Heldref Publications.

Athlete Mentality or Mindset

The presence of signs and symptoms of a concussion can impact the lives of student-athletes both in and out of athletic competition (McGrath, 2010). Since concussions rely on self-reporting, and privacy laws guard the identity of subjects, concussion studies in the past have been somewhat limited. Athletes have been known to minimize, hide, or not report their injuries and continue to play in fear of losing playing time, removal from the game, or not wanting to disappoint their coaches or teammates (Leuke, 2011). Nearly 50% of athletes reportedly under-report concussions, which have left their concussion injury unnoticed or untreated (McCrea, Hammeke, Olsen, Leo, & Guskiewicz, 2004).

In a comparison study on the pain and injury behaviors of high school and university rugby players, researchers explored student interpersonal and group behaviors and found a number of athletes expressed the idea of putting the team before self with respect to injury. The power of messages such as “no pain, no gain” conveyed to college athletes persuade them to take unreasonable risks and succumb to pressure to play hurt from coaches, teammates, and significant others, which further reinforces “an athletic subculture that emphasizes a sport ethic of physical risk taking and sacrifice” (Nixon, 1994, p. 354).

Additionally, coaches, fans, the media, and athletes themselves have created a culture which does not emphasize personal safety but rather celebrates players who show toughness and play through any pain or injuries; and highlight hits and collisions, and wins at all costs (Wandling & Guillaumondegui, 2015). For this reason, concussion education for athletes is significant in order to possibly change risk-related behaviors (Faure, 2010; Kroshus & Baugh, 2016). Athletes may be unaware of the potential long-

term effects of playing with a brain injury and if symptoms go unrecognized and are not properly managed, they might resume activity with possibly fatal consequences (Faure, 2010).

A step-by-step gradual Return to Play protocol has been generally accepted by health providers but to date, there has been little universal consensus on Return to Learn (RTL) policy or protocols (Bera & McNulty, 2015). Advice on cognitive rest has been vague and specifics have been lacking that allow for customization based on the students' individual needs academically (Bera & McNulty, 2015). At the fifth international conference on concussion in sport held in Berlin 2016, an updated version of the Return to Sport, commonly known as the Return to Play protocol (Table 3), was presented to clarify the process of recovery (McCrorry et al., 2017). An initial rest period of 24 to 48 hours is recommended prior to beginning the six step progression and at least 24 hours should pass before moving from one stage to another unless symptoms worsen.

Table 3

Graduated return-to-sport (RTS) strategy

Graduated return-to-sport (RTS) strategy			
Stage	Aim	Activity	Goal of each step
1	Symptom-limited activity	Daily activities that do not provoke symptoms	Gradual reintroduction of work/school activities
2	Light aerobic exercise	Walking or stationary cycling at slow to medium pace. No resistance training	Increase heart rate
3	Sport-specific exercise	Running or skating drills. No head impact activities	Add movement
4	Non-contact training drills	Harder training drills, eg, passing drills. May start progressive resistance training	Exercise, coordination and increased thinking
5	Full contact practice	Following medical clearance, participate in normal training activities	Restore confidence and assess functional skills by coaching staff
6	Return to sport	Normal game play	

NOTE: An initial period of 24–48 hours of both relative physical rest and cognitive rest is recommended before beginning the RTS progression. There should be at least 24 hours (or longer) for each step of the progression. If any symptoms worsen during exercise, the athlete should go back to the previous step. Resistance training should be added only in the later stages (stage 3 or 4 at the earliest). If symptoms are persistent (eg, more than 10–14 days in adults or more than 1 month in children), the athlete should be referred to a healthcare professional who is an expert in the management of concussion.

Note. From “Consensus statement on concussion in sport—the 5th international conference on concussion in sport held in Berlin.” by McCrorry, P., Meeuwisse, W., Dvorak, J., Aubry, M., Bailes, J., Broglio, S.,...& Davis, G. A. (2017). *British Journal of Sports Med*, 0, p.3. Copyright 2017 by BMJ Publishing Group Ltd.

Concussion management guidelines proposed by the Reduce-Educate-Accommodate-Pace (REAP) model used in Colorado by the Rocky Mountain Youth Sports Medicine Institute Center for Concussion developed out of the dedication of a local high school community after they lost an athlete to Second Impact Syndrome (SIS). SIS occurs when a second concussion occurs before symptoms of the first concussion have healed and may lead to death or permanent disability (McCrory & Berkovic, 1998; McLendon, Kralik, Grayson, & Golomb, 2016). If student-athletes return to athletic competition too soon, they can run the risk of SIS, if they experience another blow to the head while still recovering from symptoms from the initial concussion. Massive brain swelling results and usually has fatal results (Theye & Mueller, 2004). A less serious condition, called Post-Concussion Syndrome, occurs when concussion symptoms last more than six weeks (Theye & Mueller, 2004). Chronic Traumatic Encephalopathy, or CTE, made known by the movie, *Concussion*, is a degenerative disease of the brain found in athletes with a history of repetitive brain trauma (Centers for Disease Control and Prevention, n.d.).

The institute wanted to create a coordinated care and recovery program post-concussion and to assure the safety all students to facilitate community-based concussion management (McAvoy, 2011). The REAP model incorporates a multi-disciplinary team approach consisting of the family team, school physical team, school academic team, and medical team who each play a role during the entire recovery from a concussion. When returning to full physical activity including sports or extracurricular activities, students should be performing at their academic baseline (Halstead et al., 2013; McAvoy, 2011).

If a concussion case is managed well, research has indicated that more than 80% resolve very successfully (Collins, Lovell, Iverson, Ide, & Maroon, 2006; McAvoy, 2011).

Multidisciplinary Concussion Management

Developing a support system for academic reintegration may present challenges since recovery to pre-injury functioning varies with each individual and students may experience uneven cognitive performance (Deidrick & Farmer, 2005). A coordinated multidisciplinary team approach would help students during rehabilitation, recovery, and with some predictable difficulties when returning to the classroom (Halsted et al., 2013; McAvoy, 2011). Interprofessional collaboration between the medical providers, the school, and the student-athlete's family would help guide best practices, encourage athlete safety, and assure student success post-concussion (Schmies, 2014).

A retrospective sports-related concussion study by Carson et al. (2014) at a sports medicine and family practice in Canada reviewed the charts of 159 patients over a five-year period. Carson et al. (2014) discovered that 43.5% of patients returned to the sport too soon and 44.7% of cases returned to school too soon. They recommended physician-approved and school-coordinated guidelines that clearly outline strategies how to facilitate recovery through cognitive rest and physical activity restrictions, so students don't run the risk of prolonged recovery or return of symptoms. This was supported by Halstead et al. (2013) that recommended the need for concussion signs and symptoms to be monitored on a daily basis so concussed students receive appropriate interventions and support. Concussed students often are expected to meet educational requirements without consideration about their cognitive impairment or accommodations. Unfortunately, physician recommendations for restrictions and adjustments, do not

guarantee the school's ability or willingness for compliance in the school environment (Carson et al., 2014).

Key members of the concussion team vary in school settings. In K-12 schools, the nurse/health aide, school counselor, school psychologist, speech/language pathologist, and school administrator could help ease the students back to school life (Sady et al., 2011). Colleges and universities may have other resources and specialists engaged in the concussion team management, which are described next.

Team Management Members

Doctors, athletic trainers, nurses, speech-language pathologists, and psychologists have all weighed in about their roles as service providers following a concussion (Schmies, 2014) and parent groups including websites such as MomsTeam.com, a resource for youth sports, have shown great interest and concern in addressing the issue. On the university level, athletic trainers are closely involved in preventing, recognizing, managing, and rehabilitating injured athletes and have been a natural and main source of social support especially for athletes when family members are not available (Yang, Peek-Asa, Lowe, Heiden, & Foster, 2010). They have knowledge of the many sideline assessment tools available to health professionals, which has created a challenge to achieve uniformity in evaluation information (Wandling & Guillamondegui, 2015).

Speech-Language Pathologists (SLPs) may play an integral role due to their expertise and training in cognitive-linguistic disorders associated with TBI and can assess, diagnose, and treat such persons (Duff, 2009; Salvatore & Fjordbak, 2011). At the Miami University Concussion Management Program, the speech-language pathologists (SLP) coordinate the interdisciplinary team and work closely with the athletic trainers

(AT) who assess the immediate medical needs of the student-athletes using a sideline screening. Athletes who show signs or symptoms of a concussion are taken away from play and referred to the team physician on the field or with 24-48 hours after the injury (Porter et al., 2014).

Additionally, school personnel outside of the athletic department including guidance counselors, social workers, and teachers play an important role in the students' re-entry into the classroom and should be aware of their recovery needs (McGrath, 2010). In order to provide an adequate level of educational services to students with traumatic brain injuries, in-service training is essential (Bullock, Gable, & Mohr, 2005; Mira & Tyler, 1991). Furthermore, to facilitate better outcomes, continued education of all individuals involved in concussion care is advised (Halstead et al., 2013). Training information should include strategies that would help students return to the classroom and modify their environment (Clark, 1996).

Pre-Concussion Testing

Many colleges rely on athletic trainers to assist with concussion management from the initial evaluation to return to play (Williams et al., 2015). At Century University, all club sports athletes must complete medical paperwork and may undergo baseline concussion assessment if their sport is considered at the high-risk level (Century Sports Club Handbook, 2016; B. Jake, personal communication, January 18, 2107). A growing number of colleges have required preseason baseline testing of elite and club sports athletes using ImPACT, (Immediate Post-Concussion Assessment and Cognitive Test), a computerized concussion testing system. SCAT (Sports Concussion Assessment Tool), a well-established paper-based sideline concussion tool has also been used for

testing prior to the athletic season (Strauss, 2013). The current version is SCAT5, numbered after the fifth international conference on concussion in sport. Used immediately after injury it can differentiate concussed versus non-concussed players and the symptom checklist can help to clinically track recovery (McCrory et al., 2017). Some experts believe that the SCAT protocol is duplicative and that an athlete displaying obvious signs of a potential concussion (including loss of consciousness, balance or motor incoordination, confusion or disorientation, memory loss, blank vacant look, and visible facial injury) should stop playing and not be allowed to return on the same day (Strauss, 2013). Neurologists acknowledge that on field diagnosis can be challenging since only 10% of concussion cases are associated with loss of consciousness and for the first 24 to 48 hours, up to 10% may be asymptomatic (Ban, Bailes, Berger, Vaccaro, & Batjer, 2016). Pre-injury testing results and health history are used in post-injury evaluations (Broglia et al., 2014).

Research efforts and related news

Interest on the impact of concussions is worldwide. In May 2015, Scotland became the first country in the world to create standard sports concussion guidelines (Scottish Rugby, 2015). Until then, each sport created their own set of guidelines for head injuries and sustained play. The United Nations Committee on the Rights of Child has had conversations on child protection related to concussions on an international level.

Overall, concussion studies in the past have been somewhat limited because they have relied on self-reporting since privacy laws help guard the health information and identity of subjects. Due to growing public awareness and concern in concussion safety in the United States, developments in research have increased exponentially especially in

the basic and clinical science of SRC (McCrea, Broshek, & Barth, 2015).

In 2014, the NCAA conducted a self-reporting survey of over 600 institutions, representing approximately 20,000 student-athletes. It revealed that nearly 10% of the women and over 13% of the men reported having at least one concussion, and that 6.1% of the men and 3.2% of the women had experienced multiple concussions. Additionally, after years of resisting the issue of debilitating brain injury because of lack of scientific evidence, NCAA announced in April 2015, their plan to launch a three-year, \$30 million project, in partnership with the U.S. Department of Defense, to track the effects of concussions using data from 37,000 student-athletes (McGinty, 2015).

In July 2016, in a historic settlement, a U.S. federal judge approved a \$75 million dollar class-action concussion lawsuit against the NCAA on behalf of all college athletes. The money will reportedly create a 50-year, \$70 million monitoring program, which will be available to all current and former NCAA athletes. Five million dollars will be dedicated to research on the prevention, treatment and/or effects of concussions (Berkowitz, 2016). These funds will not go to the K-12 population but the prevention research will aim to provide knowledge and understanding of concussions to educators and the general public at large.

In April 2015, a federal judge approved a class-action one billion dollar settlement against the National Football League awarding more than 5,000 former players up to five million dollars per retired player for serious medical conditions associated with repeated head trauma (Wilson, 2015). Concussions have become a very timely issue within the higher education sports area as more national media and legal attention develops. Educators and service providers who support these students must realize that

various transitions occur from medical rehabilitation to school, which carry different demands and performance expectations (Blosser, 1998). For this reason, Schlossberg's transition model (1981, 1984, 2011; Schlossberg et al., 1995) and the framework of resiliency were selected to further this timely topic of student-athletes and concussions.

Making the Transition: Theoretical Framework

Transitions in sports, whether anticipated or unanticipated, have received modest attention in literature (Pearson & Petitpas, 1990). Schlossberg's transition model (Schlossberg, 1981, 1984, 2011; Schlossberg et al., 1995) defined a transition as an anticipated or unanticipated event or non-event, which alters roles, relationships, routines, and assumptions. The theory has been applied in several studies including career changes and college counseling. Examples included an investigation on institutional supports for veterans transitioning to school (Griffin & Gilbert, 2015); social support and academic stress of first year college students (Rayle & Chung, 2007); and college-to-work transitions addressed by Wendlandt & Rochlen (2008).

Pearson & Petitpas (1990) referenced Schlossberg's transition model (Schlossberg, 1981, 1984, 2011) to explore the various difficulties in transitions athletes face in physical and social contexts such as not making a team, injury, and retirement from sport. They mentioned that adapting to change may be impacted by emotional and behavioral deficits, limitations to form and maintain supportive relationships, and possibly lack of material and emotional resources. Seeking help is inherently a social process (Karabenick, 2004). In order to assist student-athletes post-concussion, it is important to find out where athletes turn to their network for information or support and what factors affect where they turn for help (Nixon, 1994).

The transition model acknowledges that four aspects of a transition or the 4S's system (self, situation, support, and strategies) affect how well individuals deal with change. These four components can be looked upon as coping resources, which allow for changes in an individual's situation and account for differences in how people may react to transitions. Schlossberg et al., (1995) further prescribed that the 4S's be examined as a balancing of assets and liabilities, resources and deficits, that could shift with a given situation. For instance, when assets outweigh liabilities then adjustments are relatively easy; but when the opposite occurs, then assimilation or the transition becomes more difficult. How each individual appraises their transition as positive or negative or neutral, influences how they react and feel about the transition and affects their selection of strategies to cope. Since the Schlossberg model is circular, this study will begin with self as the first component, then move to situation, followed by support, then strategies. Although this study is largely focused on support resources and strategies to cope post-concussion, the 4S model is a reminder that other components of self and situation need to be considered when evaluating or assessing the situation at hand.

Although physical injury typically occurs in most sports, dealing with the transitions due to injury, the uncertainty of the length of recovery, and the shift from being a participant to not playing can be difficult (Pearson & Petitpas, 1990). The self variable considers a person's outlook on life as influenced by their personal characteristics, mindset, and status. This would include personal and demographic characteristics such as one's state of health, gender, age, stage of life, and ethnicity. In Schlossberg's model, within the variable of self are the psychological resources such as personal characteristics; outlook, commitment, and values that help people withstand

threats.

The second S, situation, examines the features of a transition and how an individual views its significance. For athletes with a concussive injury, this can mean changes in physical and cognitive capabilities, role changes, and any related previous experiences. Situations differ from person to person and may influence how the player views or reacts to the unanticipated transition. Examples include timing of the incident (beginning of the sports season; close to final exams; during a championship tournament); duration (a temporary disability that may last longer than expected or become permanent); previous concussion experiences; and concurrent stresses at the time of the concussion that are particularly emotional.

Support, the third S, refers to a range of resources available to the individual which may be key to handling stress. It “needs to be defined operationally because it comes in many sizes and shapes, and can be for better or worse” (Schlossberg et al., 1995, p. 67). Examples include a social support system (family, friends, or teammates); support from organizations or institutions; and whether or not individuals seek the support that they need for the transition. Kahn & Antonucci (1980) identified social support as a function that provides a combination of honest feedback positive or negative, affirmation, and aid provided in a convoy of support centered around the individual. Although not mentioned in Schlossberg’s model (Schlossberg et al., 1995), athletes may also rely on their spirituality, defined as a belief in or relationship with a higher power than oneself, as a resource or coping mechanism to persevere through adversity (Ridnour & Hammermeister, 2008). This study mainly focused on formal resources available on campus but recognized the existence of informal support systems used to cope during the

transition.

Finally, the fourth S, strategies are defined as actions that individuals take in response to transitions. This includes the student-athletes' ability to cope, adapt, relearn, seek information, or inhibitions to take action. Coping can occur before, during, and after situations that are challenging or stressful (George & Siegler, 1981). Coping strategies are known to enhance recovery and may be especially significant for concussed athletes who may experience isolation, anxiety, and pain due to an injury, which has disrupted daily life (Bloom et al., 2004). This framework was utilized to study the transition period post-concussion injury.

Also underlying this disruptive unanticipated transition is the concept of resilience. Since athletes are known to often demonstrate resiliency in competition, the transition theory was coupled with a theory of resilience as it relates to the period of transition from trauma. "Resilience refers to a dynamic process encompassing positive adaptation within the context of significant adversity" (Luthar, Cicchetti, & Becker, 2000, p.543). Humans have the capacity for individual resilience following adverse experiences, which can disrupt or destroy development or successful functioning (Masten & Obradovic, 2008). Generally people consider resilience as the ability to bounce back, bend but not break, and to grow in the face of adversity but it can be "viewed as a trait, a process, or an outcome" (Southwick et al., 2014, p.2). In this study, resiliency was defined as a process to harness resources to sustain well-being (Panter-Brick & Leckman, 2013), a conscious effort to move forward in a positive way as part of reintegration of self and to cope with adversity (Southwick et al., 2014), and as the ability to draw upon external and internal resources when faced with adversity (Nourse, 2015). This study

explored what resources played a role in the recovery process for the club sports student-athletes who faced adversity while transitioning from concussion injury to student life.

Summary

During competitive play, club sports athletes, like elite athletes, may potentially experience concussions. All in all, the literature review prominently revealed the health risks and the physical and educational concerns that surround sports-related concussions. The importance of concussion education, and the significance of concussion management in the educational setting are underscored in the growing body of research. The following chapter three on methodology will reveal the proposed systematic approach for gathering and collecting research data.

Chapter 3: Methodology

After a sport-related concussion, student-athletes commonly experience difficulties when they return to the classroom. Schlossberg (1981, 1984, 2011) outlined four major factors that may influence one's ability to cope with such an unanticipated transition: self, situation, support, and strategies, which are also known as the 4 S's. Schlossberg's Transition Theory along with the concept of resiliency was used as a theoretical framework for the phenomenological case study. Added to the transition theory was the concept of resiliency defined as the ability to draw on internal and external resources when faced with adversity to bounce back to pre-adversity functioning levels (Nourse, 2015).

Outlined and summarized in this methodology chapter are the purpose of the study, the research questions, and the selection of the research tradition and setting. The anticipated data sources of this qualitative research study, the research sampling process, rights and protection of research subjects, and data collection instruments are also explained in detail. Interview protocols and the document review guide as well as journaling efforts are delineated. As Bogdan and Biklen (2003) indicated, field notes are a written account of what one hears, sees, experiences, and thinks during the collection and reflection of research data. Finally, information is provided on data collection and analysis procedures, data interpretation, and my role as the researcher. Potential researcher bias and assumptions are acknowledged as being a speech-language pathologist who has varied experiences with individuals with traumatic brain injuries and cognitive function challenges (e.g., memory, attention, language, self-awareness, and executive functioning).

Research Purpose

The focus of this qualitative research study was on post-concussion academic preparedness of college club sports student-athletes at a regional public comprehensive university. The purpose of the study was to discover what academic supports the athletes used when they transitioned back to the classroom after a sports-related traumatic brain injury. A head injury such as a concussion may disrupt a brain's ability to think, and students could experience difficulties concentrating, processing information quickly, comprehending, following or completing tasks, and working independently (Cave, 2004).

A case study approach with the phenomenological tradition was employed to document and describe the post-concussion experience from the perspectives of student-athletes. The study investigated the sources of academic support or accommodations that were available to the students; to what extent they accessed support, and whether or not they found the resources beneficial. If they elected not to seek support, the study aimed to discover why or what factors may hinder them. With the growing national interest on concussions, educators need to become more aware of the challenges these students face in order to provide the best educational and social support possible and assure successful school reentry (Deidrick & Farmer, 2005; Mohr & Bullock, 2005). Many educators lack understanding about concussions in order to deal effectively with students recovering from the condition (DeMatteo et al., 2015).

Research Questions

In order to evaluate and better understand the experiences of club sports student-athletes with concussive injuries when returning to school life, this research study

addressed the following research questions. These questions were informed by the literature and fill a crucial gap where further knowledge is needed.

The following main research questions guided this qualitative research study:

Main Research Question:

1. How do support services facilitate academic reintegration for club sport athletes at a regional public comprehensive university after a sport-related concussion?

The sub-research questions included:

Sub Research Questions:

2. What sources of support do club athletes use post-concussion during recovery and rehabilitation?

3. In what ways do the club athletes find these sources of support useful to them post-concussion?

Research was conducted through the lens of theoretical framework of (Schlossberg, 1981, 1984, 2011; Schlossberg et al., 1995). According to Schlossberg (1984) during an unanticipated transition, students may experience changes in relationships, routines, assumptions, and roles. The degree to which students perceived that the concussion impacted their ability to return to academic rigor, in the context of their athletic aspirations, was considered.

Incorporated into the transition theory was the concept of resilience, which refers to a “dynamic process encompassing positive adaptation within the context of significant adversity” (Luthar et al., 2000, p. 543). In addition, resilience building is defined as functioning and adapting despite tough circumstances by using external and internal resources to cope (Nourse, 2015). Building a conceptual framework was an iterative

process and revisions followed with new insights. This conceptual framework “guided data collection, analysis, and interpretation” (Bloomberg & Volpe, 2012, p. 87). This research study aimed at transferability to a broader context so that students with concussions, the education community, and service providers could be better informed of post-concussion concerns. Transferability refers to “how and in what ways understanding and knowledge can be applied in similar contexts and settings” (Bloomberg & Volpe, p.31).

Research Tradition

Research traditions are lenses through which researchers examine a social phenomenon (Schram, 2006). A phenomenological case study design was used to align the research purpose, the research questions, and the research methods in order to explore the process of how club sports athletes manage academic challenges while recovering from a concussion. According to Bloomberg and Volpe (2012), “qualitative research is suited to promoting a deep understanding of a social setting or activity as viewed from the perspective of the research participants” (p. 27). By combining the case study approach with the phenomenological qualitative research tradition, the components that make up the students’ concussion experiences after injury as they return to academic challenges were explored and analyzed.

A case study is a useful tool to evaluate programs and inform policy (Merriam, 2009). By design, it is the most appropriate way to contribute a rich and holistic account of a phenomenon and to discover the “how and why” in a situation (Schwandt, 2007). Accordingly, this hermeneutic phenomenological case study, aimed to understand the experiences and perceptions of each participant and to identify commonalities and

differences across cases. In keeping with the phenomenological tradition, the lived experiences and commonalities described by the small group of research participants were investigated as the parts and wholes that make up the content of the experience (Glesne, 2016).

Although no two concussions are alike, the collective case study provided a unique opportunity to examine the overall post-concussion experience, from the perspectives of the student-athletes themselves. The case studies provided an understanding about the challenges the student-athletes faced and to discover their attitudes and behaviors during their recovery period. Lastly, examining the process of gaining academic supports on campus uncovered possible opportunities for professional collaboration when student-athletes transition back to the classroom.

Research Setting

Research was conducted at Century University (pseudonym), located in the western United States. The public institution has a diverse student population of over 37,000 undergraduates and 4,500 graduate students. In 2015, Latino students made up about 44% of the undergraduates, 23% are White, 11% Asian, and 5% are African America/Black. Half of the undergraduates come from low-income families and 30% of the students are first generation. About 54% of the undergraduates are women and 46% are men. Century has a large international student enrollment of about 3,500 representing over 150 countries. Additionally, there are about 4,000 faculty and staff. The school follows a semester calendar and the student to faculty ratio is 28:1.

Among the resource services offered to the students on the campus are a recreation center, health services center, day care, and a women's center. Athletically,

there are about 20 National Collegiate Athletic Association (NCAA) varsity sports and 30 club sports. Some of the major NCAA sports include basketball, soccer, baseball, softball, volleyball, track and field, and water polo. The popular sports clubs include soccer, rugby, lacrosse, volleyball, wrestling, boxing, ice hockey, and water polo.

The elite NCAA student-athletes are offered mentoring and tutoring at an achievement center and given assistance in academic planning in order to retain academic eligibility; club sports athletes do not have this same access. The sports clubs program is affiliated with the Associated Students and not the school's Athletic Department. The club sports athletes however, have access to athletic trainers for major team contact sports and can be referred to the school's disabilities and resources center, which provides support for test taking accommodations and study skills counseling.

Century is one of several universities across the United States that offers organized competitive intercollegiate play through club sports. Club sports teams are student-run and administered and not sanctioned by the National Collegiate Athletic Association (NCAA) or the National Association of Intercollegiate Athletics (NAIA). An estimated two million students participate in club sports across the nation (Pennington, 2008) compared to the just over half a million that participate in NCAA and NAIA sports. The club sports athletes receive little financial support from the university and must organize their own fundraising. Unlike intramural sports, club sports provide an opportunity for athletes to play against other universities on a competitive level. Since 2011, two athletic trainers (ATs), who are trained on concussions, have been assigned specifically to the club sports program but this is not standard across the country. In

contrast, for NCAA Division 1 athletes, eleven ATs and academic advisors provide support to the varsity athletes as part of the school's athletic program.

Century University was selected as the research site due to geographical convenience and an invitation to study the club sports population. The sports clubs head athletic trainer on campus indicated that college club sports athletes have been overlooked in concussion studies. The athletic trainer and club sports manager provided information on the club sports program and facilitated access to students for the research study through emails, posters, and personal communication.

Data Sources and Research Sample

Data Sources

In conducting this phenomenological case study, several data sources were considered. Firstly, ten student-athletes served as data sources via one-on-one, semi-structured interviews. In addition, the club sports athletic trainer, campus physician, club sports manager, and the director of disability resources contributed data through interviews. Finally, a document review of the club sports student-athlete handbook, club sports related websites, and any protocols or referral forms pertaining to the RTL process was conducted. According to the NCAA (2015) return to learn guidelines parallel return to play and are based on expert consensus. They acknowledged that both cognitive and physical exertion require brain energy which is impacted by a concussion. The terms, "Return-To-Learn" and "Return-To-Play" are self-explanatory phrases, often found in literature about concussions (Carson et al., 2014). Multiple sources allow for triangulation in the study and reduce potential systematic biases, which can occur if a single data source, method, or procedure is used (Maxwell, 2009).

Sampling Process and Sample Characteristics

According to Glesne (2016), qualitative researchers purposefully select their cases to gain “information-rich” data from which they “can learn a great deal about issues of central importance to the purpose of the research” (Patton, 2002, p.46). To that end, a mixed sampling strategy was used in the research study, including criterion and stratified purposeful sampling.

In selecting the participants for this study, a criterion sampling strategy (Glesne, 2016) was used to identify and select 10 club sports athletes who have experienced a concussion or multiple concussions. Criterion-based sampling, “works well when all the individuals studied represent people who have experienced the same phenomenon” (Bloomberg & Volpe, 2012, p. 104). Participants had to be club sports athletes at the university and over 18 years old. Through stratified purposeful sampling, the study looked comparatively at these athletes and then made appropriate comparisons of their approaches toward academic re-entry (Miles, Humberman, & Saldana, 2014).

The concussion experiences of athletes from various club sports teams who were within one month to five years post-concussion at the four-year university were examined. This time frame was selected because research has shown that students usually recover within three weeks from injury (Halstead et al., 2013). The five-year mark was selected because there were some athletes who reportedly still suffered prolonged concussion symptoms and played prior to 2012, when athletic trainers were assigned to the campus program. According to Bleiberg et al., (2004) who researched the duration of cognitive impairment after sports concussion, a small group of studies suggested cognitive impairment was permanent after a sports concussion.

The “do-ability” factor (Rossman & Rallis, 2003) of gaining access to students was a consideration in selecting them as the focal point in this research study. The head athletic trainer in charge of club sports and the club sports manager facilitated access to the athletes and student leaders. There are about 1000 club sports athletes that participate in the program. All club athletes were eligible for the study but those who played team sports where concussive injuries are known to occur such as soccer, ice hockey, rugby, and wrestling were the main sources of participation. Any student-athlete, regardless of what club sport they represented, who had experienced a concussion within five years of data collection, was considered for the research study. A pattern was not immediately evident in the number of concussed athletes represented in a specific sport that warranted further investigation into the specific contact sport.

A sampling procedure was not necessary to interview the head athletic trainer, physician, club sports manager, or the director of disabilities resources since they represent the singular leadership in those departments.

Data Collection Procedures

Upon the commencement of the research study, an invitation flyer was created as a way to recruit potential research participants (Appendix A). The campus athletic trainers (AT) who are certified to recognize and screen for concussions and work closely with student-athletes, contacted some students with known concussions via email and informed them of the study. Flyers were posted in the offices of the athletic trainer, the school physician, and club sports. Emails, flyers, and announcements about the concussion study at the student leadership meeting vetted ten club athletes for the study.

The invitation included information on the nature of the study, its purpose, and

addressed confidentially policies and the deadline for participation. Once the students replied and expressed an interest in the study, they received an email requesting some background information such as what sport they play, age, year in school, and undergraduate major. They were asked when they had a concussion, if it occurred within the last month or within the past five years, and if they have experienced more than one concussion. In keeping with the phenomenological tradition, data collection procedures involved one-on-one personal interviews and document review.

Personal Interviews

Club sports athletes who were 18 years old and had been concussed within the past year five years were invited to participate in interviews. According to Glesne (2016), interviews provide an opportunity to discover what you cannot see and “to explore alternative explanations of what you do see” (p. 97). Semi-structured interviews were the primary source of data collection in this research study and lasted from 45-60 minutes in length. Interviews offered a collection of rich and descriptive data and allowed the research to tap into a stream of consciousness with descriptions of feelings, thoughts, images, memories, and sensations.

The interviews were semi-structured to assure some uniformity in the questions, as guided by the interview protocol. Semi-structured questions were used to allow for flexibility during the interview and to directly probe for additional information based on responses (Bernard, 1994). Listening attentively to the responses of the participants brought an understanding of their perceptions, explanations, and experiences with concussions.

Both students and campus service providers agreed to sign the informed consent

form (See Appendix E) to participate in the interview. Athlete interviews were conducted on campus in available classrooms or conference rooms, which allowed the students some privacy and reduced any loud ambient noise that might impact the interview process. The athletes' practice and game schedules were considered in scheduling the interviews. Service providers, such as the athletic trainer, physician, disabilities services director, and the club sports manager were interviewed separately at their place of work given their availability for interview.

During all interviews, digital recording devices were used to assure accuracy of the interviewee's responses. Participants were greeted with appreciation for their time and willingness to engage in the study. All attempts were made to make the interviewees feel welcome and at ease in sharing personal experiences by discussing the purpose of the study and assurances of confidentiality.

Rights and Protection of Research Subjects

Before recruitment of subjects, a human subjects research application was submitted to California State University, Northridge for review, recommendation, and approval of the study. Once the club athletes were identified, they were invited to review the purpose of the research study, asked if they would be willing to participate, and then if they are 18 years or older to obtain their consent to participate. All research participants were asked to sign an informed consent after reviewing the purpose of the research study to obtain their permission and cooperation to be studied (Creswell, 2015). They were informed that their participation was voluntary and assured that they would be treated ethically and with confidentiality. They were informed that they could pull out of the study at any time. Pseudonyms were used to protect their identity and that of the

university. Precautions were also taken to safeguard information and data including password-protected storage.

Scheduling the multiple interviews for data collection took considerable time. They were attempted over a period of several months, mainly during the season of the sport, to capture experiences as they unfolded from the perspectives of the participants. These procedures offered the opportunity to investigate the research questions thoroughly and gather the data needed since the potential of concussive injuries in students in competitive sports is inevitable and ongoing.

Data Collection Instruments

The data collection instruments for this phenomenological research study consisted primarily of interview protocols and a document review guide. These instruments were aligned with the research tradition, the research questions, literature review, and the purpose of this study, which was to investigate the post-concussion challenges and academic supports provided student-athletes. Interview questions related to the research questions but were contextual and specific (Maxwell, 2013). All interviewees were asked to relay their experiences in a detailed manner and encouraged to express their feelings and memories of the concussion phenomenon from their perspective.

Interview Protocols

During the interview process, questions were designed to elicit rich, thick descriptions, to probe for additional information and clarification on statements (Bloomberg & Volpe, 2012). Furthermore, in accordance with the phenomenological tradition, the interviews provided a window into the personal experiences of these

collegiate athletes as stated in their own words. To add depth to the study, the individual athletes were queried about their perspectives on how they coped with the demands of transitioning to school life and coursework expectations during post-concussion recovery and rehabilitation. The semi-structured questions helped establish rapport and to probe if some areas might seem sensitive to the subject. Open-ended questions outlined in the interview protocol directly correlated to the research questions and the conceptual framework of the study. Refer to Appendix B for the interview protocol.

Initially, background information was asked regarding the sport they play, when the concussion(s) occurred, age, year in school, and undergraduate major. Next, students were requested to describe their recollections of their post-concussion experiences and the time frame, in terms of days or weeks before they returned to the classroom. The athletes were asked to use descriptive words or phrases to talk about themselves and to relay their feelings about their recovery.

Another interview protocol (see Appendix C) was used to conduct semi-structured interviews with service providers including the club sports athletic trainer, campus physician, club sports manager, and disability resources director. After asking for their background information, they were given open-ended questions about the required procedures and the services they offered student-athletes after the concussion. For example, one question asked: What kinds of supports are available to concussed athletes? The follow up probe was: Tell me about the procedures needed to gain access to campus services. Additionally, questions examined if any patterns existed in the behavior or attitudes by the athletes who were recovering from concussive injury.

Document Review Guide

The other data collection instrument that was used is a document review guide (See Appendix D). In qualitative research, a document review is a valuable resource that may offer useful information to help understand a central phenomenon (Creswell, 2015). After gaining permission to use the documents from the appropriate departments, they were reviewed for content in relation to the research questions. The relative frequency of terminology in the documents, such as traumatic brain injury, concussions, Return-to-Learn, or academic support was noted and counted using PDF document software.

Among the relevant documents reviewed were the club sports athlete handbook, referral forms for services, the disability resource intake form, and related campus websites. These public documents provided data about the policies, services, and resources offered to the athletes. Discovering the types of services available, accessibility, and the academic support strategies advised to concussed students, was useful information when considering the overall research purpose. Using the phenomenological case study approach, the athlete's perceptions of these services were explored to discover whether or not they found these services useful while recovering from concussive injury.

Journaling

Throughout the research experience, a journal was used to write down any thoughts and observations, and served as a useful catchall, to guide the project (Watt, 2007). The journal helped provide contextual data documented with descriptive details in a timely manner. A procedure called memoing was followed, which entails writing memos on personal observations, impressions, thoughts, details, ideas, or concepts as part

of pre-analysis in qualitative research (Creswell 2015). Moreover, journaling allowed for reflexive subjectivity, which was necessary to data collection and analysis (Bloomberg & Volpe, 2012).

Data Analysis Procedures

Preliminary Data Analysis

Data analysis for this research study involved organizing all the information and evidence that had been gathered and collected. For ease of reading, interviews were transcribed in a naturalized manner to reflect written language (Davidson, 2009). A professional transcription service was elicited and given instructions. Data was transcribed in a question and answer format, including pauses in conversation, which facilitated following the dialog and recalling the sequence of responses for analysis. All data sources were read, reviewed, coded, and analyzed in the context of empirical literature, the conceptual frameworks of transition and resilience, and the research questions, in order to group the information in a manageable way. Post transcription, participants were contacted for member checking in order to review the accuracy of information and determine if preliminary interpretation or analysis are correct.

Transcribed interviews and documents were combed for details that pertained to the process college student-athletes with concussions undergo, to qualify and receive academic support services. Data analysis involved a three-step process: preliminary data analysis, thematic data analysis, and interpretation. During the preliminary data analysis stage, which occurred before and during data collection, the goal was to summarize issues, identify concepts, develop codes, and formulate further questions (Gribich, 2007). A systematic approach was utilized for “finding, defining, and coding themes through a

conceptual framework” (Bloomberg & Volpe, 2012, p. 142). In analyzing the data, the conceptual framework from (Schlossberg, 1981, 1984, 2011) was employed using the 4 S’s which are the four phases of transition: self, situation, supports, and strategies. Additionally, during data collection the theory of resiliency was viewed as external and internal resources used to cope (Nourse, 2015). The interview questions were formulated using the conceptual framework of transitions in addition to resilience, a trait often associated with athletes. These concepts outlined in the framework also served as codes, to draw patterns and emerging themes, as they related to the research questions.

Thematic Data Analysis

In the next step of thematic data analysis, which occurred during and after data collection, the goal was to segment, categorize, and link data in order to identify emerging themes (Gribich, 2007). Through examination of each piece of data and then building upon hunches or insights, the data was evaluated as a whole (Bloomberg & Volpe, 2012). Information was derived from research instruments including transcribed interviews, document analysis of the student-athlete handbook, and journal field notes (Appendix F).

Transcriptions, notes, memos, and documents were compiled, stored and reviewed so that they could be coded, and analyzed. As codes and themes emerged, patterns in behavior and the experiences of the concussed athletes in the context of academic learning were noted. In order to distill the information, data comparisons were conducted in an attempt to sort the information by categories, ideas, phrases, and expressions. Using a thematic form of analysis allowed for recognizing nuances of this social phenomenon and drew out the similarities and differences in perceptions, beliefs,

and values. Coding the information provided the opportunity to see linkages across data sources as they applied to the purpose of this research (Glesne, 2016).

Data Interpretation

Once data collection and coding were completed and analyzed, the research process shifted to interpretation of data. This step involved describing patterns and formulating conclusions about any patterns, interrelationships, and relationships found in the coded data. Since concussion symptoms could have been veiled or unrecognized by athletes, it was important to consider both what was said and perhaps not said or demonstrated (Glesne, 2016) during the interview process about their concussion experiences and the resources they accessed. According to Rossman and Rallis (2003), observation allows researchers to see verbal and non-verbal actions of people and to infer meanings in context. Journaling also aided in this endeavor.

To assist with interpretation, partial working drafts were shared with the respondents to check for understanding and accuracy. Additionally, the assistance of friends and colleagues was elicited through peer review by asking them to look at sections of my work. Throughout the research process, participants were de-identified by using codes instead of names and then the information was password protected to assure confidentiality.

Analyzing the data from more than one framework allowed for multiple interpretations. New insights and connections appeared from the perspectives shared by the student-athletes. This meaningful data shall add to the national and international conversations about SRC.

Role of the Researcher

I approached my research topic on concussions primarily as a doctoral student, but am also as a Speech-Language Pathologist (SLP), former television and print journalist, parent, and educator. These roles could have influenced my research participants in a positive way since I was able to demonstrate an understanding and compassion for the subject matter. As a researcher, I conducted my study in alignment with the qualitative strategies in data collection and analysis. As an SLP, I am trained to work with people with traumatic brain injuries and relied on my professional background and research knowledge when I interviewed the students and service providers. As a mother of two scholar-athletes, I was aware and have witnessed the potential dangers of competitive play. As an educator, I was concerned about the services provided to students with concussive injuries when they re-entered the classroom and the impact of the concussion on academic performance.

Researcher Bias

I realize that having a personal connection to the concussion experience may cause certain biases during my research study, but it is the reason for my passion in pursuing this topic. I felt compelled to study the subject of concussions as it relates to the student side of the student-athlete. Personal conversations with teachers revealed that a number felt ill-prepared to help students who have suffered concussions when they returned to the classroom. This sentiment was echoed in a pilot study involving an extensive interview with a high school teacher who taught several concussed athletes. She expressed frustration that the Internet was her main source of information because no teacher training was available since it was considered a low incidence occurrence. She

shared patterns in student behavior including the desire to hide concussion details for fear of losing future opportunities to play the sport and the scholar-athletes' angst with experiencing academic difficulty for the first time.

This research purposely sought to understand the concussion experience mainly from the perspectives of the student-athletes themselves in order to gain a better understanding of the challenges and triumphs they faced on the road to recovery. My passion for this topic comes as a parent, researcher, and speech-language pathologist. I accept and am aware of these biases, but wearing these hats fueled this study's purpose to gain a better understanding of how to support the needs of these athletes who are driven by determination and the desire to succeed.

Through extensive research I wish to add to this important national discussion on sports related concussions. As a Speech-Language Pathologist (SLP), I have attended various professional seminars to further understand concussion challenges, explore compensatory strategies, and to understand my professional role in the cognitive rehabilitation of clients. What I have learned and know about my topic and setting came through personal experiences, researching, professional development, and informal discussions with various stakeholders.

Effects of Researcher on Case

A researcher's personal attributes may affect a study in research contexts (Glesne, 2016). As such, I realized that I needed to monitor and recognize my own subjectivity and monitor its functioning in the context of the study (Locke, Silverman, & Spirduso, 2010). I believe that it was important to demonstrate considerable knowledge and understanding on the research topic so that participants would find value in engaging in

the study. I felt confident that I was able to involve my subjects toward meaningful dialog through open-ended questions and recording rather than reacting to responses.

Additionally, by showing genuine interest in helping students, informative responses from participants were achieved. The athletes remained candid in their responses and felt comfortable disclosing their deficits and concerns post-concussion with considerable detail. The participants appeared open and honest about their experiences and beliefs.

Effects of Case on Researcher

The topic of concussions has garnered high public interest nationally and internationally in recent years. There is a growing body of work related to concussions, mainly concerned with athletes' RTP. This research provided a connection to RTL since this area has not been addressed consistently.

The social, emotional, and educational needs of these student-athletes and their resiliency to maneuver with a traumatic brain injury may not consistently be communicated or addressed. As the principal researcher I was aware that biases could potentially affect the line of questioning but all attempts were made to evaluate best practices that addressed the best interests of students with concussions.

Researcher Strategies to Mitigate Effects

To help account for any preconceptions or biases during data collection and to add validity to data collection and analysis, peer feedback and member checks were performed to assure for accuracy. Participants in the study had the opportunity to review a draft of their part in the report for accuracy (Creswell, 2015). Getting feedback and clarification from participants were forms of member checking which allowed for

verification of their perspectives and to develop other interpretations and ideas (Glesne, 2016). Feedback on the strengths and weaknesses of the study were elicited from doctoral program colleagues through peer review and from professional colleagues familiar with traumatic brain injury or concussions.

Since this topic has had significance on a personal level, journaling about perspectives and emotions during field research helped keep sentiments documented through memoing. Kleinman and Copp (1993) suggested not to suppress but to use feelings, to formulate new questions and challenge assumptions. Although, the effects of a concussion could last a few days, weeks, or months, they can also become more than a temporary disability, which can last the rest of the athlete's life. Moreover, the experiences can have a lasting impact on the individual, the family, and the community (Centers for Disease Control and Prevention, 2015).

Summary

In summary, the methods used in this qualitative research were guided by the phenomenological research tradition and case study approach. The purpose of the study was to gain the perspectives of collegiate club sports students who had suffered concussive injuries within the past five years and to examine their experiences as they returned to academic learning. The main research question asked how support services facilitated post-concussion academic reintegration for club sport athletes at a regional public comprehensive university. To understand the academic challenges they faced, and to assure triangulation in the study, in-depth interviews were conducted with 10 student-athletes, the club sports athletic trainer, the disabilities resource center director, and the student health clinic physician. In addition, a document review of the student-athlete

handbook and handouts related to the process of accessing academic support were included. Overall, this research was intended to add to the growing body of research on concussions, specifically related to the academic needs of college student-athletes post-concussion.

Chapter 4: Findings and Results

This research study focused on the resources offered to club sports athletes at Century University after they experienced a sports related concussion and how these services supported their reintegration to academic life. A phenomenological approach was used to discover truth and understanding of their life experiences (Byrne, 2001) and to study the individuals who have experienced the same phenomenon (Bloomberg & Volpe, 2012). This study analyzed the narrative data gathered from semi-structured one-on-one interviews with ten club sports athletes and four campus representatives, to identify similarities and differences in their experiences. Additional analysis included a review of club sports documents, forms, and the procedures prescribed for sports-related concussions.

The theoretical framework guiding the process of data collection and analysis was Schlossberg's Transition Theory (1981). Schlossberg (1981, 1984, 2011) described a transition as any event or non-event that results in changed relationships, routines, assumptions, and roles. The theory led to a 4S system which provided a way to identify four sets of potential factors that influence one's ability to cope with a transition – self, situation, support, and strategies (Schlossberg, Waters, & Goodman, 1995).

Also infused in this study was the concept of resilience, or the ability to “bounce back” which athletes are often known to demonstrate in competition (Brown, Lafferty, & Triggs, 2012). When faced with adversity in sports, athletes must show their resilience to positively adapt and prevail through misfortune (Brown et al., 2015; Galli & Vealey, 2008). For the purposes of this study, resiliency was defined as a process to harness resources to sustain well-being (Panter-Brick & Leckman, 2013), a conscious effort to

move forward in a positive way as part of reintegration of self and to cope with adversity (Southwick et al., 2014), and as the ability to draw upon external and internal resources when faced with adversity (Nourse, 2015).

In this chapter, the 4S's and resiliency themes served as a conceptual framework to present the findings. Within each component of the 4S's (self, situation, support, or strategy), two general categories emerged: Return to Play (RTP) and Return to Learn (RTL). In terms of returning to the sport and/or returning to the classroom, students used formal or informal resources. These two distinct pathways impacted the participants in their transition toward resuming responsibilities and expectations as athletes and as students. The data revealed similarities and differences in their personal journeys. The descriptive findings from quotes and document reviews summarized in this chapter shall lead to recommendations for policy and practice presented in the fifth chapter. The student profiles will be presented first, then the campus resource profiles.

Student Participant Profile

Student-athletes from high impact club sports including soccer, rugby, ice hockey, and wrestling shared information about their concussion or multiple concussion experiences that occurred within one month to five-years from the study. A participant profile was created with background information about each student-athlete, in the context of his or her concussive injuries and sport on Table 4.

Table 4

Comparison of Research Participant Backgrounds

Participant (pseudonym)	Club Sport and additional sports experiences	Age/Sex Ethnicity	Education	Job	Years in sport	# of reported concussions	
						#	Blacked out
1. Vivian	Soccer Basketball cross-country	25/F Malaysian/ White	Graduate, Communication Disorders and Sciences	Yes	18	2	Yes
2. Tanya	Soccer T-ball	22/F White	senior, finance	Yes	18	3	Yes, 2x's
3. Cindy	Soccer Basketball, Tennis Martial Arts	20/F Filipino	Junior, Communication Disorders and Sciences	Yes	13	2	No Eye swollen shut.
4. Dexter	Ice Hockey	23/M White	Senior, TV production	Yes	15	2	Yes, Second one dazed
5. Lola	Rugby Swim, Cross- Country, Track, Synchronized Swimming	18/F Hispanic (Mexican)	Freshman, Biology	Yes	<1 yr.	1	Yes
6. Barry	Rugby Football	22/M Hispanic (Mexican)	Senior, Kinesiology & Sports Studies	No	3	1	No
7. Shannon	Rugby Water Polo	21/F Latino (Salvadorian)	Senior, Kinesiology	Yes	3	2	Yes, Broken nose
8. Esther	Wrestling Cross-Country, Track and Field, Volleyball, Soccer, Swimming	20/F Hispanic (Mexican/ Salvadorian)	Junior, Kinesiology	Yes	5	4 Possibly more head injuries	No
9. John	Ice Hockey Baseball, Basketball, Soccer, Water Polo.	22/M White	Junior, Systems Operations	No	11	1	Yes
10. Marci	Soccer	20/F Hispanic (Mexican)	Sophomore, Electrical Engineering	No	11	1	No

Using pseudonyms to protect the students' identities, the table provides information about each research participant's sports affiliation, previous sports experiences, age, sex, ethnicity, education, years in sport, number of concussions of reported concussions, and whether or not they blacked out. Recall that unconsciousness does not always occur with a concussion (McCrea, et al., 2004).

Three participants played women's soccer, two men's ice hockey, two women's rugby, one men's rugby, and one women's wrestling. Six out of the ten experienced multiple concussions and half said that they blacked out during the concussions. In addition to a concussion, one soccer player suffered a swollen eye while a rugby player had a broken nose. One student suffered a car accident in addition to a sports-related concussion. Two students suffered more than three concussions; one multiple sport athlete indicated that she had at least four concussions that she could recall, including one which occurred as a spectator during a sporting event. All but one participant had previously played other sports aside from their affiliated club sport. Nine out of the ten had several years of experience playing their club sport; one had only a few months training before suffering the concussion. For some students, the concussions occurred during high school and college, during practices, or tournaments. Two students were diagnosed with post-concussive syndrome and continue to suffer migraine headaches. Two described themselves as injury prone or clumsy after multiple concussions. One recalled experiencing concussion-like symptoms in middle school for which she attributed balance issues and clumsiness but never reported. Another athlete continues to complain of balance issues post-concussion. Lastly, seven out of the ten students had part time jobs and reported difficulties in job performance especially focusing post-concussion. These students returned to work and school immediately after the concussion. As one student explained, "I was not told not to go." Most of the study participants estimated that they returned to play within two weeks to two months. One athlete said she was advised it could take one year before she could return to play and is still recovering from her concussion symptoms.

Academically, the student-athletes represented a variety of majors including engineering, finance, kinesiology, biology, communication disorders and sciences, and TV production, which had varying academic demands. They described themselves as either average to above average students. Nine were undergraduates – four seniors; three juniors; one sophomore; and one freshman. One participant was a graduate student. Two students reported difficulty with receptive and expressive language, including word finding and grammar. The individualized nature of the each student’s concussion was evidenced by their backgrounds and the stories they shared about their injuries. Interviews with campus resources revealed other perspectives on the students’ concussion experiences.

Campus Resources Profiles

Additional interviews were conducted with the four main support providers involved in concussion management on campus to gain their perspectives on the issue. These included the Club Sports Program manager, the Athletic Trainer (AT), the Student Health physician, and the Disability Resource Center (DRC) director. Pseudonyms were used to assure anonymity. Century University has a robust club sports culture. Some estimates are that club sports serve about a 1,000 student-athletes in contrast to the nearly 500 NCAA student-athletes on campus. In addition, there is great contrast between the two budgets with NCAA teams receiving millions more than club sports.

Mr. Jake, the Club sports manager was hired full time in 2011 to provide professional oversight of Club Sports. As manager, Mr. Jake, has worked diligently to develop a quality program on campus and to provide the staff and facilities needed to support a growing phenomenon. Concerned with the health and safety of the student-

athletes, Mr. Jake advocated and brought in athletic trainers in 2012 because of the highly competitive nature of the various sports. Under his leadership the program expanded to include two ATs, a coordinator, graduate assistant, 40 student support staff, and an athletic training room. Century's program has developed into a model for other universities and Mr. Jake is often consulted on club sports policies and procedures. He initiated a student leadership council that represents all club teams and meets two to three times a month. He said it was meant as a communication tool to foster student leadership development and to give the students from each club team a voice in the development and direction of the program. The meetings help maintain a communication channel, and provide students an opportunity to interact with other athletes. Club officers "gain leadership experiences in budgeting, fundraising, public speaking, scheduling and decision making...not only intended to benefit students during their time on campus, but long after they leave the university" (Sports Club Handbook, 2016). In a short time, the program has become known as one of the best club sports athletic training programs in the state.

Mr. Bryant heads the Athletic Training program and has been an athletic trainer (AT) for about seven years; his third year at the university. He and the other AT, Ms. Sylvia, work closely together to provide training, injury prevention, and support to the club athletes modeled after NCAA care standards and guidelines. According to him, the ATs receive extensive training on concussion management and that "the only people that get more education and training on concussion would be a physician, neurologist, or a concussion specialist." Mr. Bryant and Ms. Sylvia disseminate information to the athletes regarding the campus resources available to students with concussions.

Dr. Omar has a medical degree in osteopathic medicine and specialized in sports medicine. He believes in a whole mind, body, and spirit approach to medicine. He was a nationally certified athletic trainer and certified strength and conditioning specialist. He holds several degrees including a Master in Public Health and Masters in Kinesiology. He has provided services at the Student Health Clinic and as an assistant team physician. Omar has evaluated the elite Division One athletes but works mainly with the club sports athletes. As a medical student, Omar researched return to learn and play policies and has been passionately interested in the subject.

Ms. Jackie, the director of the Disability Resource Center (DRC), has been at Century for over 25 years helping students with disabilities. While she was a student, a knee accident resulted in a physical disability but ignited her passion to help people with disabilities. She became a student assistant at the DRC in 1984 and helped established a lab for disabled students using computer technology in 1987. By 2010, she was promoted to DRC director in recognition after years of dedication to the field. All four service providers described their roles on campus and interests in helping student-athletes with concussive injuries during the transition period of rehabilitation and recovery.

Review of Findings in Response to Research Questions

1. How do support services facilitate academic reintegration for club sport athletes at a regional public comprehensive university after a sport-related concussion?

Overall, support services did not facilitate academic reintegration for club sports athletes. Many students returned to the classroom immediately after concussion injury with little cognitive rest. While still experiencing concussion symptoms such as dizziness, headaches, light sensitivity, and nausea, students went to class anyway or

attempted to take tests. They complained of difficulty with focusing, concentrating, processing and retaining information, and even recalling previously known material. One student talked about taking “mindless notes” and another wore sunglasses in the classroom to handle the glare of lights. Students reported feeling fatigued and sleeping more but also studying longer to try to keep up with academic demands.

Post concussion, the focus involved mainly on monitoring the students’ gradual return to play. No protocols were in place for Return to Learn. Student-athletes were offered a referral to the Disability Resource Center (DRC) for their temporary disability especially if they demonstrated prolonged symptoms but most did not choose to access the services and decided to “tough it out” or wait for the symptoms to subside. Ultimately, it was up to the club athletes to decide what services, if any, they would use. Prior to the ATs joining the Club Sports program students reported lack of awareness, reporting, or monitoring of the signs and symptoms of concussions. Additional information and responses are provided in the Third S: Support section below.

2. What sources of support do club athletes use post-concussion during recovery and rehabilitation?

Students relied on both informal and formal sources of support post-concussion. During recovery and rehabilitation, most depended on the athletic trainers. Additionally, the athletes had to receive clearance from the campus physician to begin the gradual Return to Play protocol and eventually return to active full contact practice. Those who used the support from the DRC sought extended time for tests like final exams. Some students said that they wished they had taken advantage of the support sooner and have since recommended the DRC to teammates. Some students independently sought campus

tutoring to help them with their academic struggles. One student reported using sports psychological counseling for support.

In addition to these formal resources, the club athletes relied on informal support from their family, teammates and friends to help them through their difficulties. Some preferred the support of study groups while others preferred to study independently so that could review coursework at their own pace. Most students did not notify their professors about their concussion. The few that did, found their instructors understanding and supportive.

3. In what ways do the club athletes find these sources of support useful to them post concussion?

With regard to academics, few students used campus supports post-concussion or the DRC. Since a concussion is considered a temporary disability, those who utilized the DRC for extended time on test taking were relieved to have the additional time to process and respond to information especially for final exams. Those who independently sought tutoring on campus due to failing grades found those resources useful.

The club athletes who complied with daily check-ins with the ATs and followed the recovery program prescribed by the doctor and ATs found their support the most beneficial in order to get back to playing. Many students reported that ATs helped them understand their concussive injury and were so caring and supportive during their rehabilitation. Those who were less compliant struggled with their recovery process and return to sport. The student who sought counseling with a sports psychologist found that resource extremely helpful in handling the personality changes and emotional struggles experienced post-concussion.

Overall, most students did not use academic campus resources post-concussion and independently created compensatory strategies to help them study or manage daily living demands. This is further explained in the section on the Fourth S: Strategies below. Students reported that learning strategies were not suggested to them post concussion other than taking breaks while studying and avoiding screens for the first few days. Their return to the classroom was left to their own discretion and not monitored as closely as their physical return to sport. Students attended classes despite concussion symptoms such as headache and dizziness. None of the students opted to use note takers offered by the DRC. Without a gradual RTL policy in place, and only offering the DRC as an option, students were left to self-determine when and how to resume academic rigor during the period of recovery and rehabilitation. Now that the formal answers to the research questions have been highlighted, the remainder of this chapter will present the findings in accordance with the main theoretical framework Schlossberg's Transition Theory and how the respondents spoke to the four components of transition - self, situation, support, and strategies.

First S: Self

The first "S" in the Schlossberg's 4S system stands for self. This includes personal characteristics, mindset, and self-image. Of the ten student-athlete study participants, seven were female and three were male between the ages of 18 and 25. In terms of ethnicity over half of the students were Hispanic/Latino, three were White, one Filipino, and one mixed-race Malaysian/White. When the college club sports student-athletes were asked to describe themselves, they used adjectives such as honest, friendly, persistent, motivated, kind, and determined. When they described themselves as athletes,

they used words such as skilled, quick, always looking to improve, hard working, and disciplined. They labeled themselves as students that were hard working, dedicated, “always trying to be on top of things”, “always trying to multi-task”, and life-long learners. As the student-athletes explained, their mindset while playing differs from their mindset when they are in the classroom.

Fundamental to the findings of this research study are the differences in these student-athletes’ mindsets when faced with physical versus cognitive demands. As Barry, a club sports rugby player summarized, “Being an athlete is physically demanding. You have to be aggressive...A student going to classes has mental demands and it requires self-discipline.” John, a systems and operations major said that he “gives it his all” for his schoolwork or his sport, ice hockey. Vivian, who played years of soccer, described her differing mindsets in this manner, “The drive is different. I guess it’s the adrenaline rush I get on the field is a lot different than just sitting in a classroom and learning.” As an electrical engineer major who plays soccer, Marci explained how soccer allows her to forget everything else and focus on the game. As an athlete she has to read the play and show determination at the moment of play. As a student, she feels that she has to focus on “so many different things going on at once.” Although their mindsets during athletic competition differed from the mindsets they exercised in the classroom, their motivation and drive to put forth their best efforts in both arenas were evident.

Athletes demonstrate an intrinsic motivation to respond to adversity in a positive way and show a resilient reintegration to adapt to situations at hand (Brown et al., 2015). As Fenton and Pitter (2007) indicated, sports cultures encourage students to suffer through aches and pains and to “take one for the team” or “suck it up” (p.212). Since

athletes are likely “to return to the classroom while symptomatic from their concussion” (Halstead et al., 2013, p.953), these athletes appeared motivated to “tough it out” in the classroom as well.

Most study participants described themselves as self-reliant and indicated that they had difficulty asking for help. Lola, an 18-year old rugby player of Mexican-American heritage brought forth a cultural perspective, “In our family, you don’t really ask [for help]. We have to do it on our own until we figure it out.” As Schlossberg et al., (1995) indicated, one cannot underestimate an individual’s race and background and its effects on cultural norms and values in navigating transitions.

The club sports athletes described resiliency as “just persevering through and pushing through no matter what challenges you face and just dealing with them...no matter how hard it is” or “getting back on your feet when you fall down.” They also described it as “the ability to work through [situations] even when it’s tough”, “never giving up” and “taking whatever is coming your way and learning to deal with it.” John who played various sports including ice hockey said this mental toughness gave him the determination to recover from the ailments of the concussion. As a whole, most of the students considered themselves as resilient and it appeared that this resilient quality helped the students through this period of transition with the situations they faced.

Second S: Situation

The second “S” of the 4S’s (1995) stands for situation, which includes previous experiences, physical situation, cognitive abilities, and any subsequent role changes. After being diagnosed with a concussion, the student-athletes recalled having an assortment of similar feelings. They mentioned a mental “fogginess” and that they were

“just going through the motions.” The following statements summarized the participants’ sentiments post-concussion: “Something was off...I just didn’t feel right;” “I was having a hard time concentrating;” “I needed to take more time to do homework and to study...I needed time to study, take a break, study again.” The study primarily looked at the concept of situation through the students’ concussion stories.

Concussion Stories

As the student-athletes retold their stories of their concussion during the individual interviews, it was as if they were transported to that moment; touching the very spot of impact with their hand and gazing at the incident with a distant stare. For many of the student-athletes in the study, their concussion or concussions impacted their lives physically, academically, emotionally, and behaviorally, either short term or long term. All the students candidly discussed the signs and symptoms of their concussions as well as their rehabilitation and recovery periods. The following are some examples of their stories.

Vivian, a soccer player for most of her life said that she has become more cautious while playing since her two concussions. She is more prone to migraine headaches and sometimes forgets that she is not supposed to head the ball. She was diagnosed with post concussive syndrome and has a family history of generalized anxiety disorder and depression, which she said made adapting to the concussions worse.

It made it so difficult to get out of bed sometimes because I have the headaches, and it's made me really tired all the time and just hard to focus, kind of like I'm in a cloud... It made it hard to retain what I was trying to learn because my mind would wander.

Dr. Omar, the campus physician confirmed that post concussive syndrome is frequently seen in individuals that have incomplete recovery and have other confounding variables such as history of migraine headaches, depression, anxiety, and other psychiatric illnesses. Their recovery is prolonged for a variety of reasons but the exact reasoning is not completely known.

A novice club rugby player, Lola got kicked on the head during a “scrum” which happens when opposing teams interlock to try to gain control of the ball. She found herself under a pile of teammates and opponents and remembered too late to give the “Mayday” call, which is a warning that the scrum is in danger of collapsing. She thinks she blacked out but remembered getting up, running, and getting back in the game. Her prolonged recovery situation has been frustrating as she shared the following:

I can't do my things that I used to be able to. I could run, I cross-country, I used to do six or seven miles. Now it's tiring to even run. I wish it didn't take so long because I want to get back to playing. I miss playing. It was the de-stressor for me.

As a fluent bilingual student, she noticed that she experienced deficits in both English and Spanish, trying to find the proper word for translation while speaking. At work, she said customers showed her little empathy and would correct her English.

Dexter, an ice-hockey player who had a couple of concussions recalled waking up in a locker room after blacking out and wondering what happened. His second concussion happened a year later when he was going down to get a puck. He hit his head on the dashboard after an opposing player threw his body onto him. The concussion

symptoms that followed were all too familiar. He remembered feeling “a little off” in a “complete haze, and being super emotional” while recovering.

Another female rugby player, Shannon, admitted that she played through concussion symptoms during a tournament. She didn’t want to tell anyone about her injury because she wanted to play the next day despite “the biggest migraine of [her] life.” The first time when she went in for a tackle, she remembers hitting her head straight onto an opponent’s hip, bouncing off and then seeing dots everywhere. The next day she got kneed in the head but couldn’t remember if it happened when she got tackled or was tackled by someone in a ruck, which happened when players were binding up to take possession of the ball. “I remember everyone was just yelling and hurting my head, and it was just frustrating. I was frustrated, so angry.” She recalled that her personality changed. “I was more quiet. I was more reserved, and people would talk to me and I just got really angry at anything.”

A kinesiology student with aspirations to be a physical therapist, Shannon said she recovered from her first concussion, which she got while practicing defense drills and resolved within a week. Her second concussion felt like “her brain was all jumbled up” and she still suffers short-term memory deficits. She recalled going to class with a headache but ready to take a trigonometry test after the concussion and just sat and stared at it. She said, “It could have been in Chinese. There was just nothing I understood from the test.” She normally excelled in math and knew how to calculate angles but did not know where to start. Frustrated, she realized at that moment that something was wrong. The effects of this concussion took her by surprise. Luckily, she had emailed the

professor the night before about her concussion so she was able to take the test at a later date.

John, an ice-hockey player, shared video during his interview of the moment he hit and fell backwards on the ice. His recollections of the incident come from what people told him because he was in a daze. “It's hard to tell in the video, if I actually hit my head or it was just maybe from the collision, that I got the concussion.” His teammates told him that he “wasn’t making sense and saying weird things,” “was pretty out of it” and “wasn’t talking right”. He remembers that he was told to stay away from screens but he used his phone a little too much and felt his head hurting so he stopped. He said, “I just didn’t feel right” in the beginning but afterwards “snapped back in” and felt pretty normal with a “little bit of fogginess,” Although he investigated the option, he chose not to seek any academic support services because he “felt pretty normal” and “didn’t think [he] needed it.” He said he returned to class two to four days post-concussion.

After three concussions including a car accident, Tanya, a soccer player noticed that concentrating in classes was worse than usual. Her sports-related concussion happened during a practice two years ago when she headed a ball that was over-inflated. She blacked out briefly. She recalled having a hard time concentrating, had sensitivity to light, especially direct sunlight, and sleeping more. A few days later she went to the AT to report her symptoms and discovered that she was below her concussion baseline so she was suspended from play for over a month and restricted from heading the ball when she returned. After her third concussion, Tanya was referred to several specialists for post-concussion syndrome, a deviated septum, temporomandibular joint disorder or pain in the

jaw joint and surrounding muscles, as well as a weak immune system, which caused sinus infections. As an above average student she insisted, “It wasn’t that the classes were necessarily difficult, I just couldn’t focus.” During the interview she was having word finding difficulties and on a number occasions showed memory deficits as she struggled to recall information. For instance she would add to her comments, “I forget what else”, “I forget his name”, or “I forget what it’s called”.

Lastly, Esther, a club wrestler, reported that she has had at least four diagnosed concussions while playing various sports and had two hospital visits. She confessed, “I am not entirely sure what happened with all of them.” She remembers having ringing in the ears; fluctuations in sleep patterns, and changes in her behavior like “getting mad for everything.” She said she has to write down everything the moment she thinks about it or she will forget. Sometimes in the middle of a conversation she will forget what she was going to say. She shared she has trouble processing information, finding the right words, and speaks slowly. “Sometimes I have trouble thinking of what I want to say and it's hard to put it together into one thing. Then sometimes I know what I want to say but it doesn't always come out.” Esther mentioned that she had experienced “various hits” to the head playing sports and as a bystander that were left unreported. She thinks some as early as middle school could be the reason for her clumsiness and tendency to be accident-prone. Her first reported concussion happened during practice in high school as two friends were wrestling close by, one threw the other friend and his feet landed on the back of her head. There was no athletic trainer, but a coach was present who waited for her mom to take her to the hospital.

Last semester she experienced “really bad headaches.” While at home one day with a headache came tunnel vision and a tingling on her arm and face. She thought she was having a stroke. She described the situation further, “I felt like my head was just being crushed from the outside in and I still have numbness on this side of my body and so I was confused.” She had another episode a couple of months later with numbness on the same side and remembered having trouble tying her shoe and thinking her arm had fallen asleep. She has been advised by her doctor to get an MRI for cluster headaches or migraine. She couldn’t remember if she told the doctors about her concussion history. As these concussion stories revealed, the situations of each of these athletes were so unique and varied that the supports that they needed post-concussion had to be individualized.

Third S: Support

Formal and Informal Resources

The third component in Schlossberg’s 4S system is support. This includes any academic support, social emotional support of family, friends, teammates, or school, and whether or not an individual sought support. This section answers the main research question, “How do support services facilitate academic reintegration for club sport athletes at a regional public comprehensive university after a sport-related concussion?”

The athletic trainer, clinic physician, disability resources coordinator, and the club sports manager provided the main formal support services on campus. Counseling and tutoring are briefly mentioned since a handful of student students sought support from those resources. Informal resources included the support of family, friends, teammates and self-help strategies. To further highlight the differences between the return to learn

versus return to play pathways, Table 5 illustrates the formal and informal support resources available. Details are then provided about the various sources of support starting with the athletic trainers; the education and awareness around concussion education; the student clinic physician; the disability resources coordinator; and other related services.

Table 5			
<i>Formal and Informal Sources of Support for RTP vs. RTL</i>			
RETURN TO PLAY		RETURN TO LEARN	
Formal	Informal	Formal	Informal
-Club Sports Program -Athletic Trainer (AT) -Student Health Doctor -RTP protocol -Healthcare specialists	-Practices/team support -Time off -Sleep/self-care -Family, friends, teammates -Team leadership	-Disability Resource Center (DRC) -Department Tutoring -Speech and Language Center, Neurology Clinic -Counseling Center -Learning Resource Center tutoring -Professors	-Self-study -Group-study -Individual study strategies -Family, friends, teammates

Athletic Trainers

For a majority of the student-athletes in the study, the ATs were the most significant resource for concussion support. The ATs work under the direction and supervision of a campus physician and work closely with the club sports program management to create and implement policies. According to Mr. Bryant, the head of athletic training, “ATs are basically the first line of defense for the athletes for anything that they need as far as sports medicine... to make them better athletes, and keep them healthy and strong at the same time.” The two ATs manage and facilitate all of the physicals related to pre-participation screening of the club sports athletes. They are formally trained to recognize the signs and symptoms of concussions, oversee baseline concussion testing, and conduct evaluations on the field.

Mr. Bryant shared that he dictates care based on the needs of the club teams. They follow a RTP protocol but do not follow a set protocol for RTL. If an athlete's concussion is determined to be severe, the AT will either send the athlete to the hospital or have them follow up with the Student Health physician. Exam results are compared to baseline concussion tests done prior to athletic season. The ATs follow up with athletes with concussion injuries through daily or weekly symptom check-ins. Mr. Bryant mentioned that students are not always compliant with check-ins, which slows down their return. "We educate and we facilitate, but we do put the responsibility on [the club athletes] to manage their own care." They also oversee a fully functioning clinic and weight room specifically for the club sports athletes. In the past, they have conducted tackling clinics for rugby experts to teach better techniques and injury prevention.

The busy ATs also attend practices and games for all of the high-risk clubs. A sport is considered high risk because the team has either a high competitive level or the sport has a high risk for injury or severity of injury. The Club Sports program staffs every practice, game, and event with building managers who are student employees that are first aid and CPR certified. They are the "eyes and ears for the low risk clubs" and report back to the AT if follow up is needed. According to Mr. Jake, the Club Sports program is responsible for providing personnel at 30-60 events a week each semester.

A couple of student-athletes who participated in club sports prior to ATs coming in 2012 said the program has benefitted from the expertise and knowledge of the trainers who have been a great help to athletes. One student said in the past she did not report concussive symptoms because there was no AT at the time and acknowledged that they were probably "mini concussions". Another athlete who had multiple concussions said

that for the longest time she thought it was normal to just wake up with a headache.

Many of the athletes said during recovery they developed trusting relationships with the ATs who took the time with every individual. As Cindy, a soccer player who had her eye swollen shut when she got her concussion explained, “They set good limits so I came back just fine.” Mr. Bryant described the support they offer in the following manner:

We do a lot of just letting them know what we can do for them, and letting them know that it's here for [them]. You just have to take advantage of it. One of the things in sport clubs we have certain clubs, our women's soccer team, our men's rugby team, are very, very open to everything that we do. We see certain players from those teams in here every day whether they're healthy or injured or just to say hi because they enjoy being in here. It's an open, safe atmosphere for them where they can improve themselves without anything negative. It's not just concussion; it's injury prevention, nutrition, and training. Kids ask me for life advice all the time. It's kind of a little bit of everything that we provide for these kids.

Of all the club sports, Mr. Bryant said that women’s rugby has the most reported concussions since they have more novice versus experienced players. “They don't know how to tackle very well, and so they fall, and they hit their head either on the ground, or to a knee, or to somebody else's head.” He noticed that incidences of concussion are a little higher in female sports. Mr. Bryant added that hockey and soccer have the highest number of reported concussions due to their high competitive levels, number of games played on the same weekend, and the game itself is very high risk. “For different sports there [are] different factors.”

Club Sports Concussion Education and Awareness

Part of the support provided by the Club Sports program under the direction of the ATs is concussion education and awareness. Some study participants admitted that because they have more information about concussions and now know how a concussion feels like, they might have previously experienced other undiagnosed concussions. Even with these improvements and increased public awareness of concussion signs and symptoms, some athletes mentioned that sometimes concussions still go unreported. Two players mentioned that some coaches will allegedly “pressure [the players] to go back in and that's why they don't like the athletic trainers being there. They don't want their players to get checked out.” In aggressive sports such as rugby, players are inclined to play through injury and pain and a player’s status on the team affects reactions to injury management (Fenton & Pitter, 2010). As a veteran soccer player declared, growing up, a lot of the time coaches just said, ‘Oh, you're fine. Suck it up. Go back in, you're fine,’ but now coaches aren't really allowed to do that anymore or they're not supposed to do that. According to the Mr. Bryant, concussion education has been crucial to raising student athlete awareness of the dangers of the traumatic brain injury (TBI).

If there's a risk of concussion, then they're absolutely not going to play because there's second impact syndrome, there's post-concussive syndrome, there's a lot of risks of continuing to play with those situations. Preventing that whole “toughing it out” mentality has meant educating the students to understand that if they hit their head and continue to play and hit their head a second time that it may result in permanent brain damage, memory issues, behavioral changes, and CTE

(Chronic Traumatic Encephalopathy). Most of the students are not willing to pursue that route and will listen to the medical staff.

He adamantly stated that there is no a tolerance rule where toughing it out is not an option. Dr. Omar, the campus physician echoed this sentiment:

Part of concussion treatment is education. It's not just treating the concussion itself because a lot of what we do for the concussion is actually if you think about it's very passive. It's just a matter of avoiding physical activity, avoiding looking at a screen all day long or taking breaks from your studying...to try to minimize cognitive exertion as well...It's not a lot of active treatment that you need to do, it's just giving it time really. We do spend a majority of our time educating more than anything else and I think awareness is a good way to put it.

According to Mr. Jake, the club sports manager, concussions are managed “good or better than anybody else around.” He estimated that compared to last year, the Club Sports program is probably catching 80-85% of concussions that occur. He added, “There may be one or two here and there that we don't see, that are minor, that don't get reported by the athlete, or the coach misses it.”

At the beginning of each school year, the Club Sports program provides an orientation to returning and new club sports athletes. Mr. Bryant said that as part of their medical clearance, the athletes must provide a medical history, and go over a concussion awareness fact sheet, which includes the signs and symptoms of concussions and what to do if they have a concussion. They also acknowledge their responsibility in writing to report any signs or symptoms of their head injury or a teammates' concussion to a certified athletic trainer in a timely manner and “without fear of repercussions”

(Concussion Statement of Agreement, 2016). These protocols were recently put in place within the last few years.

All the students who play high impact club sports such as ice hockey, rugby, soccer, and wrestling, must complete a computerized baseline concussion assessment (Sports Club Handbook, 2016). In the 2016 school year, the club sports program transitioned to using the automated concussion exam called ImPACT (Immediate Post-Concussion Assessment and Cognitive Test). It is an internationally recognized computerized concussion evaluation system, which looks at reaction time, memory capacity, speed of mental processing and executive functions. The baseline information is used to compare results if a student is suspected of having a concussion.

As a tangible resource that reflected support, a document review of the Club Sports handbook was completed by recording the number of times words related to concussion surfaced within the handbook including the words concussion, return to learn, return to play, and resources. The review assisted in verifying the program's commitment to concussion management as they espoused. A relative frequency percentage was determined for each term by comparing the occurrence of the four target words to each other. The word *concussion* was used most frequently (43%) with *resources* (29%) the next most used (See Table 6). RTP and RTL were referred one time each as progressions determined in conjunction with the student health center. It was no surprise that the word concussion was repeated with the most frequency because the club sports program and staff stress the importance of concussion education and awareness throughout the program. Both RTL and RTP had equal mention, but no specific

information was provided with regard to protocols or procedures. The word resources were mentioned but not in the context of available post-concussion support services.

Table 6

Sports Club Student Handbook Word Frequency Count

WORD	CONTEXT	COUNT	RELATIVE FREQUENCY
Return to learn	In conjunction with the student health center provides pre-participation exams, concussion follow-up, return to learn, and return to play progressions, as well as any individual needs for each participant.	1	14%
Concussion	Health center provides concussion follow-up; concussion assessment; concussion agreement	3	43%
Return to play	return to play progressions	1	14%
Resources	Sports club staff as resources available to assist sports clubs; sport clubs make every effort to support programs through their own resources.	2	29%
TOTAL		7	100%

Student Clinic Physician

After a concussion referral from the AT, athletes have the option of going to the campus student clinic to visit the sports medicine physician or their private doctor. A typical post-concussion examination would include an evaluation of cognitive, physical, and neurological deficiencies. The ImPACT exam baselines conducted before the sport season are compared to post-concussion re-examination results but the SCAT3 can also be used to measure symptoms. The SCAT3 form acknowledges previous disabilities such as a learning disability, dyslexia, and attention deficit hyperactivity disorder.

With some variance, Dr. Omar, the campus clinician said he uses the SCAT3 as a guide to examine patients with head injuries to look at their cognitive and physical

function. Student-athletes are tested on motor coordination, balance, headache, dizziness, pressure in the head, drowsiness, nausea, sleepiness, fatigue, and light and noise sensitivity among other things. Both he and the ATs refer to a list of about 22 symptoms from the standardized SCAT3 to monitor the students' recovery. Most of the items in the checklist test physical implications but includes cognitive or psycho-emotional information for such problems as focusing and remembering, anxiety, sadness, nervousness, anxiousness, and irritability. The most recent revision of the concussion assessment tool, the SCAT 5, was revealed at the 5th International Consensus Conference on Concussion in Sport held in Berlin in October 2016. This is evidence of the rapid changes in the last few years on concussion assessment.

Put in perspective in terms of RTP versus RTL, RTP focuses on the physical deficits that impact the students' ability to go back to sports activities while RTL processes focus on the cognitive and socio-emotional elements that impact students' ability to function academically. During the examination, Dr. Omar would ask students certain questions related to "difficulty concentrating, difficulty remembering, feeling slow, and so on" which gives a basic idea of the student's cognitive function. He would gather subjective data by asking the students how they are feeling in class, if they are able to sit through a lecture, if their concentration is worse than normal, and if they have had any changes in being able to read or write and so on. The doctor highlighted the significance of measuring recovery in all areas, "Just like any injury, part of the recovery is not recovering from that injury itself but recovery mentally to be prepared to go back to activities."

During the interview, Dr. Omar, further explained that concussions are an individual occurrence and clients heal differently. “A person can get hit really, really hard and not show symptoms and some just get hit slightly and just in the wrong way [their] body moved show more severe symptoms.” He usually performs weekly check-ins with the students with concussions but they are not always compliant. Dr. Omar shared that the only pattern he has seen in the students with reported concussions is related to their level of compliance. He stated:

Because I've had some students that despite me warning them about taking it easy: resting, sleeping, not drinking alcohol, some still go out and do those things. Some will go out to a party and stay up all night, that kind of thing.

Furthermore, with regard to recovery, he added,

I haven't really found a good pattern to say that this person is going to be more at risk of having prolonged course of recovery and prolonged difficulties getting back to the classroom, and so on. I haven't been able to find a set pattern beyond that.

The physicians have the authority to clear a student to return to athletic competition.

After the students are considered symptom free and cleared to play, the ATs follow an internationally accepted six-stage Return to Play (RTP) protocol. According to the National Athletic Trainers' Association Position Statement on the management of sport concussion, the graduated protocol begins with no activity, moves to light aerobic activity, and then sport specific exercise. The transition is made to non-contact training drills to unrestricted training, and finally full contact practice or RTP. If the students are

symptom-free for at least 24 hours between each interval, then they can return to normal activities (Broglia et al., 2014).

According to Bera and McNulty (2015) who conducted a literature review on RTL following a concussion, there has been more acceptance of a RTP protocol and little agreement on a RTL protocol in concussion management. Health professionals have often provided students vague advice and few recommendations on cognitive rest. A RTL protocol could help manage cognitive needs and be individualized according to academic needs. Emphasis in this club sports program has been on concussion prevention and interventions related to RTP. Support for the students' academic reintegration post-concussion has been limited to referrals of more severe cases to the DRC.

Disability Resource Center and Other Resources

If students appeared to demonstrate prolonged concussion symptoms or complained about school or testing, they were referred to the Disability Resource Center (DRC) for a 30-day accommodation to qualify for individualized support including test taking and other academic resources. According to Mr. Bryant, that's usually enough time to cover the athletes and their recovery within that period. If not, they can get an extension for an additional period from the doctor.

Mr. Bryant commented that DRC is offered to all the students. However, he mentioned that about 90% of concussion cases he sees resolve in 10 days and by the time the paperwork is processed, the student-athletes have already recovered. About 50% of the concussion injuries that were referred by the ATs to the DRC were because the concussions affected them in school and they showed ongoing symptoms. He said,

If the athletes are only suffering from minor headache, minor dizziness, it's not affecting their cognitive function and their ability to perform in school, a lot of the athletes will opt not to use [DRC] just because of the time that it takes ... It's not worth utilizing those resources if they're unnecessary.

As a result, most of the athletes who suffer minor headaches and dizziness post-concussion are either not referred to DRC or opt not to register for the DRC because the process/paperwork takes time and they may recover by then. "If they do not feel that it affects their school performance or cognitive function, they do not seek this service."

Of those students the campus ATs or student health center referred for sports-related concussions, Ms. Jackie, the DRC director, estimated that only one quarter of the students ended up using services. However, this actually represented an increase from three to four years prior.

In order to qualify for DRC services, a student has to be referred by a licensed healthcare practitioner such as the athletic trainer, campus physician, or a private doctor who verifies if the impairment is either permanent or temporary. They also indicate the degree of functional impairment as mild, moderate, or severe. Impairments can be medication-related or disability-related. Concussions qualify as temporary disabilities. Among the areas considered are agitation, chronic pain, confusion/thought disorder, decreased concentration, difficulty sustaining physical energy over extended time, distractibility, and impaired coordination and performance on timed tasks. These are all complaints that the club sports student-athletes in the study reported.

The DRC offers educational resources such as extended time on test, note takers, technology items, and academic counseling. According to Ms. Jackie, most of the

student-athletes use the services for exam accommodations and extended test time. She explained that modifications are not typically given in higher education but sometimes professors will provide substitute or alternate assignments. If the DRC determines that students are eligible for an accommodation, a professor, unless it violates an academic standard, does not have a right to deny it. While informing the instructor, the DRC does not reveal the reason for the accommodation, just the need for accommodation. Due to privacy laws and rights to confidentiality, it is up to the students if they feel comfortable to let their professors know they had a concussion

On most course syllabi across the university, a paragraph on disabilities is included which Ms. Jackie originally drafted. It states:

If you know you have a disability that could affect your performance in this class, please contact the Disabilities and Resource Center for free, [phone number] confidential help and information. You are welcome to share this information with the professor, if you wish; the sooner you do so, the better the professor can help you.

Despite campus outreach efforts by the DRC, Ms. Jackie has found that students do not pay attention to the information about their services or may overlook it because “they don’t see themselves as that person with a disability.” Students may not realize that they qualify for these services even if it is a temporary functional limitation. For student-athletes she has found, “They’re not really interested in rehabilitation, they’re interested in getting back in the game.” She commented that there are so many other components related to accepting services including a cultural one where it might be taboo to talk about having a disability or there is a stigma attached to it. She added:

There is an athletic culture that says buck up and get in the game, regardless of what that means. If you have a disability, clearly disability means no game in their mind. How do you change that? I don't know. The doctor says you can go play, but you still can't think straight enough to, it takes you longer to do whatever, then fine. Just because you're playing the game doesn't mean you can't have services here.

Other formal academic resources available on campus for student-athletes and the general student population besides professors, are tutoring services through the various departments as well as the Learning Resource Center (LRC) that offers workshops, one-on-one and group tutoring, to help in math, chemistry, writing, biology, physics, and other subjects. For socio-emotional support, the sports psychologist offered counseling services and support groups.

Student Perspectives on Return to Learn

Overall, most students relied on the services provided by the AT in order to return to sport. Since the support system provided by the AT was woven into the club sports program procedures and policies, the AT was the most used resource. However, the student-athletes said they did not receive suggestions for learning strategies while coping with the concussion. Successful academic reintegration of students with TBI requires assessment of each student's abilities and needs and interventions designed to help them function and progress during the recovery stages (Bowen, 2005) .

The following are some examples of students' experiences:

Dexter, an ice-hockey player studying television production admitted, "I can't tell if I've acclimated back to where I was intellectually before my concussions, or I've just

gotten used to where I am now intellectually.” He said despite the daily headaches and constant fatigue he kept moving forward. He considered taking omega-3 oils that he heard supports brain health. He recalled that the fluorescent lights in class gave him the worst headache so he could not look at the projection screen. He would go to class and then he’d want to back to bed again. His advice to students with concussions, was not to force the recovery process and to follow the recommendations of the trainers and doctors. “You just gotta remember that you’re not working at 100% and your body’s main priority is to repair you not necessarily think critically at a certain point.”

For many of the athletes the prospect of going back to play motivated their recovery because playing is a physical and emotional outlet. As Vivian, the graduate student said:” If I would be having a tough time in school, if I would be frustrated with myself, I would have soccer. It’s something I know how to do and I knew I was good at it.” Her teammate, Tanya added that just being around the team helped her not have a down period during recovery. Even when they could not play, the students wanted to be around the game or integrated somehow with the team. Four study participants had leadership roles within the respective teams.

Marci, a club soccer player said during a pretty competitive game for regionals, she got hit jumping for the ball while an opposing player was going toward her to prevent the play. She sat out because she was dizzy and got a bump on her head. She was evaluated by the AT, iced her head, and felt good enough to go back in the game 20 minutes later. After the game, her teammates in a supportive way, told her to get checked out by the AT because they had filled out paperwork about her head injury. The 20 year old said she felt forced to go in, but if it were not for that, she would have hesitated to get

help. After all she didn't feel concussive symptoms right away. Two or three days later at practice she felt a little dazed and found it really hard to concentrate in her engineering classes. She remembered, "being in a fog" and "not being fully there."

I couldn't retain the information, and when I would go back to study, or review my notes, it's like when you read a sentence and you re-read it and re-read it and re-read it over again because you can't process it, but this was different because I knew this information, it's basic math, or science, so that was what caught me off guard.

Marci explained her situation in this manner, "With studying, I had to study a little bit longer, and then with playing, it was just doing everything a little bit slower."

She wound up signing up for the DRC to get extended test time for her final exams and said the process was really easy. After she turned in the paperwork, she made an appointment to meet with a DRC counselor who told her about the service.

She said she was relieved that she could get the extra time for class and finals.

Many students returned to school the next day despite lingering headaches, mental foginess, and difficulty concentrating. As an electrical engineering major, said knowing that the school support was there when she needed it helped her during recovery. She explained that she comes from a hardcore soccer family that rarely saw doctors. Ice was the usual remedy. She got stressed out when concussion symptoms started to affect her in school and engaged in self-talk to motivate herself. She said because she has a hard major, it was really hard to take time off from school. However, she said she felt relieved when she sought help.

I think just getting help. It was hard, but I did it, so I think that was the biggest thing that I used to adapt, because I usually never like to ask for help or try to ask for help, so actually asking and getting help from my teammates and at home was just ... It was nice.

With all the formal and informal resources available to the students, she expressed the need for individualized help to recognize what supports would best suit each student-athlete.

Behavior and emotional support

Lastly, a rugby player who for weeks did not report to the AT, sought counseling services because she was not getting any better and found herself getting emotional and frustrated at people and for the smallest things. She chose not to use the DRC services offered to her because she felt that accepting help meant she still in a concussive state. Her attitude was: “I don’t need it. I’m fine. This is going away soon.” Overall, she said that the counseling and support groups helped her the most during recovery and rehabilitation. “I just wanted to be myself again, and I definitely felt like I needed to talk to someone about it.” She said the sports psychologist was most helpful because she specialized in and understood the needs of athletes with concussions. Her teammate who experienced prolonged concussion symptoms, thought about going to counseling but decided to forego it because she was failing classes and needed the time to go to tutoring instead. She would engage in self-talk about her predicament, “I was more angry at myself like, “Okay, you got yourself hurt and now you have to pass this class.” I was telling myself, “Get it together.”

Although she appeared strong during the interview, she said she could easily get emotional. The college freshman said taking care of her Australian finches was therapeutic since they were entertaining and a distraction from her injuries. A deeper discussion on behavior and emotion after a TBI is beyond the scope of this research but may impact learning and the ability to keep up with academic demands and recovery (Mohr & Bullock, 2005).

Seeking support vs. Self-Reliance

As Mr. Bryant indicated, “We educate and we facilitate but we put the responsibility on them [students] to manage their own care.” Ms. Jackie echoed the decision-making power of the student-athletes to use or not use the support services. As she put it, “We’ve tried to advertise to students but there is still a lot of stigma around this... by law the students decide if they want to seek the service or not.”

Some students considered their concussion “no big deal” and didn’t think it warranted the additional support such as note taking. Cindy, a soccer player who played multiple sports said, “I didn’t feel like there was anything wrong with me. I was just like, oh I have a concussion. It’s not a big deal.”

Informally, some student-athletes would turn to friends or teammates for group study. Many looked toward teammates, friends, and family members for socio-emotional support. A couple of students hid their second concussion from their family members because they wanted to continue to play the sport.

For the most part, the club sports athletes did not naturally demonstrate help-seeking behaviors (Karabenick, Knapp, & Levin, 1991). Many decided to “tough it out”

“push through it” or hoped that the symptoms would resolve quickly. Interestingly, most students felt that their concussion “wasn’t significant enough” to seek help. Some didn’t realize that they would be eligible for temporary accommodations for their concussions while others knew about the services and decided that they didn’t need it.

Just like students in the comparison research study on the academic help-seeking behaviors of college students by Karabenick, Knapp, & Levin (1991) most of the collegians sought support formally or informally if it related to academic achievement, but did not want to be dependent on the resource. The collegians solicited more instrumental help seeking behaviors to gain the minimum assistance “sufficient to achieve independently” (Karabenick et al., 1991, p. 221). Research participants self-reported that getting help for academics felt like an admission of lack of ability or ignorance. Similarly, many of the student-athletes in this study, wanted to resolve their academic difficulties on their own rather than elicit help. The study concluded that students should be alerted to circumstances when asking for help is appropriate and can be instrumental in academic achievement.

With regard to not seeking academic support on campus post-concussion, many students explained, “I thought I could do it myself.” They described a self-reliance and “tough it out” mentality when returning to academic rigor. Two participants sought tutoring services such as LRC or through the Math Department and another two students took advantage of DRC support. Those students who sought help were either struggling academically, felt they needed extra time to take exams to process information, or didn’t want to have to take a course over again. Since the AT and physician closely monitored

their concussion symptoms, most were compliant and motivated to recover. They were monitored mainly for physical rest than cognitive rest through the RTP protocol. Most students decided not to use DRC support services even when offered because they said they didn't think they needed it. One of the ten students found counseling post-concussion the most helpful resource.

One student who refused to go to the DRC would not formally receive support despite demonstrating post-concussion symptoms. Interestingly, the reason the student gave for not wanting to receive disability support services is the new political administration. She said that President Donald Trump mocked a disabled reporter and the current Secretary of Education Betsy DeVos "does not like students with disabilities." She fears that her financial aid, which she relies on to pay for her education, would be taken away.

Perhaps the anti-immigrant sentiments aroused during recent political campaigns also increased feelings of distrust. She hopes to go to dental or medical school and does not want her school records to show that she was a student with a disability; albeit temporary. She continues to have difficulty recovering from her concussion. She also refused neurological clinic support provided by the Speech and Language Center. Although she struggles with prolonged concussion signs and symptoms including difficulty with memory and retaining information, she felt given the current political climate, accepting any support would impact her future. She stated: "I don't want my name to be tarnished in a way where I can get in trouble later in life or I can't get a job." The students' reasons for accessing or not accessing these formal and informal resources will be discussed further under the fourth S, strategies.

Fourth S: Strategies

Post-Concussion Resources

The fourth and final part of the 4S model is strategies. This entails approaches for coping, adapting, information seeking, relearning, or any inhibition of action. These strategies will be discussed in the context of how the students returned to academic life and back to athletics. Table 7 provides a comparison of the formal and informal RTP versus the RTL resources the student-athletes used and did not use during the period of rehabilitation and recovery and why.

Table 7

Formal and Informal RTP and RTL Resources Used by Students

Student (pseudonym)	Formal Resources used		Informal Resources used	
	RTP	RTL	RTP	RTL
1. Vivian	AT Physician	DRC Before, didn't know she could get academic support or would be eligible	Family Extra sleep/self-care Team practices Team Leadership	Self-study strategies Family support Teammates, friends
2. Tanya	AT Physician Healthcare Specialist Dentist	Not referred to DRC	Teammates Friends family Team leadership	Self-study strategies, studied more than usual, took more breaks
3. Cindy	AT Physician	Professor	Teammates Family	Group study
4. Dexter	AT Physician	DRC client, has dysgraphia; chose not to use support for concussion	Teammates family	Self-study Daily living strategies for finding keys
5. Lola	AT Physician Department subject tutoring	Referred to Neurology clinic (SLC) for memory issues; referred to DRC; Concerned about stigma for using services; Mathematics Department tutoring center	Teammates Family Friends Not yet cleared	Self-study; Complained of communication deficits including word-finding in both English and Spanish, poor memory
6. Barry	AT Physician	DRC for test taking; already had eligibility as a student with autism; did not use it for concussion	Teammates fraternity	Self-strategies; Found times to be alone away from distractions, focus on self, Look-up strategy Study with friends
7. Shannon	AT non-compliant with check-ins Physician	DRC offered, did not use services; used counseling services of sports psychologist; support groups	Emailed professor about concussion prior to test	Took copious notes; reviewed and reviewed; studied and took breaks
8. Esther	AT, Physician Hospital	Tutoring from LRC	Teammates Family	Friends in her major tutored her; study group
9. John	Hospital AT Physician	Looked into DRC, but did not use	Teammates	Self-study
10. Marci	AT Physician	DRC Extended time for test professors	Teammates	Self study Study partner

Formal sources used by the student-athletes for RTP mainly involved the Athletic Trainer (AT) and the Student Health physician or other healthcare specialists. Dr. Omar said that he individualizes treatment and advises students to avoid screens, get plenty of sleep, avoid alcohol, drugs, and cigarette smoking. With regard to the classroom, he said he tells students to get assistance with notes, speak to the professor about difficulties, and to take a scheduled five minute break for 30 minutes of

studying. If students work, he advises them to come up with ways to modify their work activities “to minimize return to symptoms or worsening of symptoms.”

Informally, for both RTP and RTL pathways, most students relied on the support of family, friends, and teammates during the recovery period. Some attended practices and watched from the sidelines to continue supporting their team and to be around their teammates while they were still rehabilitating. Others studied with their teammates or classmates or took extra time to study by themselves. The time off from physical play meant time for self-care. Most complained that their concussion caused fatigue and excessive sleepiness.

Vivian remembered, “I would sleep 10 hours, go to class and then come home and take a nap for another 3 hours.” Some of the athletes like her continued leadership roles on their club team while others said they couldn’t do anything like go to the gym but could go to the games to support the team. For the injured athletes, being suspended from play became an unexpected transition.

The Club Sports manager shared, “Some sports utilize the services very well, and other sports, not as much.” Interestingly, he mentioned that the culture of the sport, not availability, determines whether athletes use resources. He added, “Certain sports, particularly ones that haven’t had access to athletic trainers at most levels of play, are more resistant.” As a caveat, he indicated that if students feel the services would be advantageous to them, then they would take advantage of them such as getting more time on tests.

In terms of RTL, of the 10 athletes who participated in the study, only two strategically used the DRC services post-concussion but only to get extended time on

final exams. Three student-athletes who had prior accommodations arranged through the DRC due to other health impairments such as dysgraphia, autism, and a wrist injury did not consider using the services for post-concussion difficulties.

Some students used department tutoring or the Learning Resource Center on campus when they were failing classes. None of the student-athletes used the neurology clinic in the Speech and Language Center (SLC) on campus for support for cognitive communication dysfunction. The campus physician, club sports manager, and AT were not aware of the services or the potential connection. The campus physician has since made contact with the campus clinic that assists adults with TBI.

Speech-language pathologists (SLPs) are trained to work with clients with traumatic brain injuries and provide therapy to help with issues related to memory, word-finding difficulty, attention, thought organization, and executive function. Salvatore and Fjordbak (2011) who studied the evolving evaluation and treatment of sports-related concussions from traditional paper and pencil tasks to computer based and sideline assessments, concluded that SLPs can provide an important role in concussion prevention and management. They are uniquely qualified to be a part of an interdisciplinary team because of their expertise in cognitive-linguistic disorders associated with traumatic brain injury (Porter et al., 2014).

Due to cognitive deficits after their concussions some students created their own strategies to help them cope with daily living and school demands.

Compensatory Strategies

For the most part, students were left on their own to manage cognitive rehabilitation post-concussion and to develop their own strategies. For many of the study participants, their concussion injury or injuries impacted academic life and daily living. For Dexter who works at a retail store, the hardest part of the day for him was remembering where he parked his car. He had devised a simple system to put his car keys in his shoes so that he would not misplace them. With regard to academics, most of the students preferred self-study but some chose group study with classmates or teammates for support and tutoring help.

The following scenarios highlight strategies some students used to compensate for their concussion difficulties when they returned to the classroom:

1) For Shannon, a college senior, her study strategy involved taking copious notes while recording lectures, going home and taking notes on her notes, then rewriting them over and over again to review and remember the information.

2) Tanya, a senior finance major described herself as an above average student and indicated that reading through textbooks became harder and took more time than usual after her concussions because she couldn't focus and "would space out a little too much." She did not inform her professors about any of her concussions and didn't even think to let them know. From what she recalled, she said at no point was she told not to return to classes after injury. To combat her struggles, she changed her study habits by breaking up her readings into several days instead of doing it in one night especially since her workload in upper division classes were more demanding. As a strategy, she would pre-teach herself, go to class, and then review the material by taking additional notes.

Tanya also used flash cards to review material because she noticed she was slower at processing information. She preferred the classes where professors would video record themselves because it would give her a chance to re-watch and re-listen to the information to help her process the information and independently review any information she missed while sitting in class. Study guides were also helpful to her. She would study for tests days in advance by reviewing her textbook and notes. Tanya minimized her struggles saying that she would “just try to figure it out on [her] own and just hope for the best” because she “just had a concussion.”

3) Determined to make it through school despite her four concussions, Esther, a kinesiology major, said she used laughter and humor to cope. She noticed that her personality changed after the concussions and she was often mad. She described herself as so busy doing so many projects, having job offers, and taking on leadership positions.

4) For David who lives in a fraternity house, a change in study space such as a library helped reduce his distractions by finding a quiet room. Sometimes he said he would cope by simply looking up for 15 minutes to an hour, somewhere like the sky “to get away from everything and everyone and just focus on [himself].”

The student-athletes’ post-concussion struggles not only affected them in the classroom but also after they were cleared to return to sport.

Return to Learn vs. Return to Play Strategies

In Mr. Bryant’s opinion, the timeline for RTP and RTL are definitely different. “You can still go to class with a little bit of a headache, and you can still take a test if you’re feeling a bit nauseated, but we’re not going to be physically stressing you with running or contact practice until you’re 100% recovered.” However, as mentioned

previously, students found it difficult to function in class. They experienced headaches and difficulty with memory and concentration, among other things. A rugby player who still suffers concussion symptoms shared, “I was really light sensitive, I would use sunglasses in classrooms because there was just too much noise and it was irritating too.”

On one end of the spectrum, two out of the ten students reported having no problems with academics a week after the concussion. They did not have to relearn anything and felt back to normal. On the other end were students with multiple concussions who continued to have difficulties with memory, attention, concentration, word-finding, and thought organization. After the sports-related concussion, all students reported that they did not take any time off from school. Many returned to class the next day. Although most of the students chose not to inform their instructors about their concussion, those who did, said their instructors were supportive and understanding and even offered a chance to take exams at another time.

A soccer player for most of her life, Tanya said that she has become more cautious to protect her head while playing since her two concussions. She is more prone to migraine headaches and sometimes forgets that she is not supposed to head the ball. In her job as a referee, she is pleased that younger players are now not allowed to head the ball until the age of 12 when their necks are stronger. A number of soccer players mentioned that they needed to remind themselves or were reminded by their teammates not to head the ball or not so much. They found themselves more cautious when they eventually returned to active play. All in all, being able to transition back to sport and school and to regain normalcy was the ultimate goal for the students.

Resiliency: Return to Self

Since Schlossberg's 4S model (1995) presents as a cyclical model during the period of transition, a period of "returning to self" post-concussion may be considered a part of the recovery and rehabilitation process. What many of these student-athletes had in common was their desire to go back to the sport they love and to be an active member of the team. Their motivation to return to play or at least to be a part of the team again was an overarching theme. When the possibility of academic failure or difficulty became an issue, then students sought additional support such as tutoring, counseling, or got extended test taking time facilitated through the DRC. They showed their resiliency or a "can-do attitude" during the process. Ms. Jackie, the DRC director further explained the transition journey. At some point after their unexpected transition or concussion, students are advised about not getting stuck in a circular pattern but to get past the transition period to jump off to the next transition, which is known rather than unknown. Hopefully students will be equipped with other skills by that point to move on over time.

Summary and Conclusion

The support services on campus only partially facilitated the academic reintegration of club sports athletes after a sport-related concussion. A protocol and procedures are in place to help a student return to play after injury but less emphasis is placed on return to academic rigor and the cognitive dysfunction some student-athletes face post-concussion. During recovery and rehabilitation, most student-athletes did not tend to seek formal academic support. A couple of club athletes sought DRC support for extended time on texts and tutoring to help them with difficulties understanding class

material. Fewer used counseling support and none used the neurological intervention from the Speech and Language Center.

Some students viewed their concussion as “no big deal” and didn’t think they merited additional support or special accommodations such as note taking or extended time for test taking. For academic difficulties, most student-athletes relied on themselves to make the adjustments to study habits and routines. Some questioned if they were the same intellectually as before the concussion or if they had just acclimated. One player said she began self-diagnosing and tried different things unsuccessfully to help her focus, and wondered whether or not she had a learning disability.

Mandated clearance from a physician to return to sport and the active role of the ATs are built into the Club Sports program. This makes these two campus resources the most accessed and significant resources on campus. Students who participated in club sports before the AT’s were hired in 2012, said they experienced a profound difference in their understanding of concussions and were happy to have the professional support and guidance during injuries, including the concussion. The Club Sports manager reported a dramatic increase in concussion detection and reporting since ATs became involved.

For the most part, students maintained an athlete mindset to “tough it out” or “play through it” even in the classroom. Some healed from their concussion within weeks to months while others continued to have extended difficulties. Students relied more on internal resources (themselves) than external resources when faced with adversity but when faced with academic struggles and failing grades, the collegians elicited aid. Overall, a majority of the athletes had difficulty asking for help and did not seek an advantage or assistance during the period of recovery. Students who informed their

professors about their concussion found their instructors understanding and proactive in offering alternate time to take exams. Those who practiced non-compliance with AT monitoring and recommendations experienced a prolonged recovery period to RTP.

One could argue that based on the research findings that due to their self-reliance, motivation to return to sport, and competitive nature, the student-athletes developed their own coping mechanisms, including a resiliency, during recovery and rehabilitation. When asked, many athletes said that they did not experience any physical changes after their concussion. They were more cautious in play, more aware of concussion symptoms in themselves and others, and encouraged teammates to report concussions. Perhaps they did not recognize in themselves that although their TBI did not manifest itself outwardly, the chemical changes did result in a misfiring of neurons, which affected their abilities to think and consciously react to cognitive demands. To concentrate and maintain focus in classes required physical and emotional energy, thinking power, motivation to maintain it, great resolve, and perseverance. Despite these difficulties, their personal resilience and discipline as athletes strengthened their actions and determination toward recovery. Inevitably the “toughing it” out athlete mindset used during athletic play carried over to the academic life since most students preferred not to seek formal resources for assistance with RTL.

Chapter 5: Findings, Implications, and Recommendations

The results of this phenomenological research study on collegiate club sports athletes provided firsthand knowledge of post-concussion experiences and challenges students faced when reintegrating into the classroom. The main purpose of the study was to provide a clearer understanding of the process of re-entry back to academic life from the students' point of view, and to determine which resources provided valuable support. Most research on concussions has been quantitative in nature such as those related to brain studies (Mez et al., 2017); concussion management (Thomas, Apps, Hoffman, McCrea, Hammeke, 2015); and concussion trends (Zhang, 2016). A qualitative approach was appropriate to examine the various factors impacting recovery and the return to academic demands because the issues associated with concussions are often not readily visible to others (Hux et al., 2010; Ylvisaker et al., 2001). In addition, concussions are hard to diagnose objectively because assessments rely on the athletes' willingness to report signs and symptoms of injury (Buck, 2011).

Presented in this final chapter is a summary of the research study, an overview of the problem, and findings related to the literature. Conclusions based on the data, implications for action, and recommendations for further research studies are suggested. This information is helpful for educators, healthcare providers, parents, coaches, athletics personnel, and as well as students.

Summary of Study

With increased interest on sports related concussions within the past decade, professional athletes and National Collegiate Athletic Association (NCAA) athletes have garnered the most attention and funding related to traumatic brain injury (TBI) research.

Few have studied the over two million athletes in higher education who participate in club sports, a growing phenomenon across the United States that has gained massive popularity (Lifschutz, 2012; Pennington, 2008). Club sports attract students who want to continue competitive athletic play while balancing academics and a social life in college (Pennington, 2008). More research studies have placed an emphasis on concussion prevention and Return to Play (RTP) than on Return to Learn (RTL). The absence of a widely accepted RTL protocol makes this area less focused upon but not less significant.

The research questions that guided this qualitative phenomenological case study included the following:

1. How do support services facilitate academic reintegration for club sport athletes at a regional public comprehensive university after a sport-related concussion?
2. What sources of support do club athletes use post-concussion during recovery and rehabilitation?
3. In what ways do the club athletes find these sources of support useful to them post-concussion?

Participants were asked about the support services available to them after a sports-related concussion, if and how they accessed the resources, and whether or not they were helpful during the period of transition. The variability of each participant's story necessitated an examination of every participant's experiences while discovering similarities and differences in the general process of academic reintegration.

Overview of Problem

Sports-related concussions have received heightened attention and scrutiny in the United States as evidenced by news headlines, legislation in all 50 states, scientific

research, and even the release of the popular movie, *Concussion* (2015). Every year in the U.S., an estimated 1.6 to 3.8 million people experience TBI related to sports and recreation, including concussions (Centers for Disease Control and Prevention, 2012). Second only to auto accidents, sports are the leading cause of traumatic brain injuries among those age 15 to 24 years (Gessel, Fields, Collins, Dick & Comstock, 2007). However, since many people with mild to moderate TBI do not seek medical advice and as many as 50% of concussions go unreported, these numbers could be largely underestimated (Daneshvar, Nowinski, McKee, & Cantu, 2011; Harmon et al., 2013). Furthermore, the needs of students with concussive injuries have not been effectively addressed in the school setting due to lack of resources, inconsistent provider recommendations, and the absence of communication channels across providers (Deidrick & Farmer, 2005; Laker, 2015; Mohr & Bullock, 2005; Ransom et al., 2015). Most students will recover within the first three weeks of injury (Collins et al., 2006) but for those who experience concussion symptoms longer than three weeks, concussion management and accommodations in school may be necessary (Halstead et al., 2013).

Although much of the focus post-concussion has been on the physical ability to return to sport, cognitive or mental exertion can also impact the brain's metabolic state and should be considered (Majerske et al., 2008). In fact, symptoms could worsen if physical and mental stresses are placed on an injured brain, which could prolong recovery and cognitive dysfunction (Halstead et al., 2015; Meckler, 2014). Concussion symptoms may be exacerbated by activities that require cognitive demands such as watching TV, listening to music, playing video games, reading and doing school work (William, Welch, Parson, & McLeod, 2015). Academic reintegration may involve rescheduling exams,

reducing coursework, shortening the school day, or one-on-one class sessions (Majerske, et al., 2008). A student needs to strike a balance between exertion and cognitive rest during recovery but the demands of college life sometimes dictate otherwise.

Review of Methodology

In order to better understand and evaluate the experiences of club sports student-athletes post-concussion at Century University, data was collected and gathered systematically under the phenomenological tradition. Ten participants were selected using a criterion-based sampling strategy (Glesne, 2016), whereby participants had to be at least 18 years of age, play a club sport, and experienced a sports-related concussion within the past month to five years of the study. This time frame was selected since most athletes recover within a month and some students with lingering symptoms had participated in club sports prior to the athletic trainers' involvement in the program. An unanticipated result of the five-year time span was that participants recalled concussions as early as middle school and high school.

The three male and seven female athletes from Century University who participated in the phenomenological study played the following high impact sports: soccer, rugby, ice hockey, and wrestling. Although concussions may occur in all sports, the highest incidences occur in football, hockey, rugby, soccer, and basketball (Harmon et al., 2013). To allow for triangulation in the study and reduce potential systematic biases, which can occur if a single data source, method, or procedure is used (Maxwell, 2008), in depth interviews were conducted along with a document review. Interviews with the students as well as the four main campus resources available to students post-concussion were performed. Specifically, the club sports program manager, athletic

trainer, campus physician, and disability resource center director, provided unique perspectives. Pseudonyms were used throughout to protect the identity of all participants.

In order to answer the research questions, two theoretical frameworks guided this study. First, Schlossberg's Transition Theory and the 4S's - self, situation, support, and strategy - which described four aspects of how individuals cope with change during an unexpected transition such as a concussive injury. The second was resiliency, defined as a process to harness resources to sustain well-being (Panter-Brick & Leckman, 2013), a conscious effort to move forward in a positive way as part of reintegration of self and to cope with adversity (Southwick et al., 2014), and as the ability to draw upon external and internal resources when faced with adversity (Nourse, 2015). Themes and subthemes emerged which highlighted the similarities and differences of the students' experiences.

Discussion of Findings

The in-depth interviews conducted with ten club sports athletes and four campus resources at Century University as well as the data from document reviews helped answer the research questions. This study provided a unique opportunity to openly discuss concussion experiences with athletes who as a group have been known to underreport, minimize, or hide their injuries for fear of reduced playtime, being removed from the game, or disappointing the coach or teammates (Leuke, 2011). Since student-athletes' self-reported symptoms have been the cornerstone of concussion management for determining appropriate care and support toward gradual return to play (Merritt, Meyer & Arnett, 2015) the same considerations may be placed on their transition to return to learn.

Facilitation of Academic Reintegration

The study discovered that post-concussion, club athletes were provided minimum guidance on academic reintegration after a sports related concussion. All study participants who experienced concussions within the last five years reported that they returned to the classroom immediately or within days after injury. In contrast, the students reported taking two weeks to months or more before returning to full contact play. Students reported that they were not offered strategies on how to cope with concussion symptoms with regard to studying and learning during the recovery period. The main resource offered to students was the Disability Resource Center for academic accommodations but many chose not to seek the external support and decided to “tough it out” on their own instead. This study confirmed that the college students did not fully understand the value of such accommodations or how to advocate for themselves when faced with adult-decisions, especially if they had never experienced a concussion before (Kennedy, 2017).

The advice of the American Medical Society for Sports Medicine position statement on concussion in sport indicated that when returning to class, “Students will require cognitive rest and may require academic accommodations such as a reduced workload and extended time for tests while recovering from a concussion” (Harmon et al., 2013, p. 2). The Centers for Disease Control and Prevention (2017) also recommended rest after a concussion to allow the brain time to heal and warned that trying to “tough it out” could make symptoms worse. Cognitive rest implies limiting activities that demand concentration and attention, such as using the computer or schoolwork and taking frequent breaks as needed. Cognitive and physical rest are

recommended in the initial management of concussions; since there are no specific treatments for concussions, practitioners have favored an individualized approach to focus on managing symptoms and returning to play (Scorza, Raleigh, & O'Connor, 2012).

Many students reported being advised after their concussion to stay away from using screens such as their cell phone and television which they found difficult to do. All revealed attending classes while still experiencing a wide range of symptoms such as headaches, nausea, light sensitivity, vision problems, the inability to focus, process, or retain information and behavioral changes such as irritability, feeling emotional, and sleepiness. Unfortunately, these impairments in neurologic function often occur with a rapid onset, may resolve spontaneously, and may not be observed by coaches or athletic trainers (Daneshvar et al., 2011).

For the most part, students preferred to rely on themselves when it came to dealing with school demands post-concussion. Many talked about changing their study habits to adjust to their inability to focus and retain information. Reading, re-reading, reviewing material in chunks, writing copious notes, reviewing lecture notes and slides, re-listening to audio-recorded lectures, and taking frequent breaks were some strategies the students used to cope. Many complained that it took longer than usual to study, which further suggests that these students placed additional stress on brain function rather than adhering to the recommended cognitive rest or gradual return to cognitive demands. A handful sought campus tutoring services, mentioned about their concussion to their professors, or turned to group study with friends for academic support. Many student-athletes engaged in instructional and motivational self talk (Blanchfield, Hardy,

DeMorree, Staiano, & Marcora, 2014) to get through difficult moments in their recovery. Post-concussion, the student-athletes benefitted in some way from the campus resources they utilized either recommended to them or discovered on their own.

Another aspect affecting post-concussion recovery but not often considered involves the learning environment, which can increase symptoms with exposure to bright lights and screens or noisy cafeterias (Halstead, et al., 2013). Some students in the study said they needed to wear sunglasses in the classroom due to light sensitivity. One hockey player recalled having daily headaches, feeling fatigued and tired, and just wanting to go to bed after class. Pre-concussion, he had normal vision but had a hard time seeing the information on slides and the light from the projection screen gave him the worst headaches. A soccer student said that sunlight bothered her and she often spaced out in class. Since she was taking demanding upper division classes for her major, what helped her was that the instructor recorded lectures so she could review them independently and take adequate breaks while listening and without distractions.

Since some students may appear physically well after a concussion, school officials and peers may not realize or fully understand the extent of deficits experienced by these athletes. Furthermore, “this lack of outward physical appearance of illness may also make it difficult for school officials to accept the need for adjustments for a student with a concussion” (Halstead et al., 2013, p. 949). In the meantime, students have had to bear the cost of their “invisible injury.” The interviews in the study also disclosed what resources the student-athletes used during recovery and rehabilitation, and in what ways they found the sources of support valuable to them post-concussion.

Sources of Support Used By Athletes

All in all, students used formal and informal resources during their rehabilitation and recovery period to transition back into academic life and daily living. Informal sources of support included family members, friends, teammates, and classmates. The formal resources utilized on campus included the Club Sports Program, Athletic Trainer (AT), campus physician, and the Disability Resource Center (DRC). Tutoring services, counseling services, and supportive professors also helped the students during the transitional period. As Dr. Omar, the campus physician explained, “Having resources available to them [the students] can help them recover while maintaining the responsibilities they have.” He added that compliance more than resiliency plays a role in recovery because healing from injury is more important than trying to get through an injury.

Club Sports Program

The club sports program at Century University offers a professional staff and facilities to support the growing student athlete population involved in competitive team sports. Concussion education and management are strongly supported and evident in formal policies and procedures outlined in the student handbook. They have created a culture where concussion education has made players and coaches recognize the signs and symptoms of concussion and to be accountable. This includes a fact sheet about concussions and a requirement for all players to report any head injuries or concussions. Additionally, a student leadership council comprised of representatives from each of the 30 club sports teams meets frequently to communicate information and to deliver input into the sports program. One such leadership meeting provided a medium to recruit

subjects for this research study. From his vantage point as club sports manager and coach, Mr. Jake observed that the students that listened to the advice given by healthcare providers during recovery and rehabilitation tended to “recover a little bit faster” than the students who don’t heed the advice.

Athletic Trainers and Physicians

The Athletic Trainers and physician have been essential partners in managing the college student-athlete’s concussions. Concussion management has rested mainly on the Athletic Trainers (AT) who perform several tasks including prevention, assessment, and follow-up of concussion injuries. The two athletic trainers assigned to club sports serve close to one thousand students and must rely on building managers, who are student employees certified in first aid and CPR, to be their eyes and ears at games and practices for teams that are not considered high impact sports. ATs attend practices and games of teams of high impact sports such as rugby and soccer, and follow a protocol to assess and treat injured players.

According to Mr. Bryant, the head AT, they perform daily symptom checks post-concussion, provide information about the process of accessing the disability resource center for academic accommodations, and facilitate health care. Once the doctor has given a student athlete a health clearance, they begin a graduated return to play protocol. Eventually they return back to practice and games. Usually students are not withheld completely from returning to class and are allowed to return to the classroom earlier than they would return to play (RTP). Players are not allowed to do any physical activity until they are symptom free but are allowed to go to classes or return to learn (RTL) even with

a headache or nausea. The two recovery timelines for RTP and RTL are viewed differently.

As Dr. Omar, the campus physician expressed, determining RTL is difficult because “you can't push that school year back a bit for them to recover then continue with the rest of the classwork.” Students end up going back to school the next day or whenever their next classes are and do not necessarily receive follow-up care in terms of academic reintegration.

During recovery and rehabilitation, their main focus therefore has been mainly on the student's return to sport not as much on return to learn. The students mentioned the helpfulness of the doctors at the campus clinic. Those who were complaint with advice had a shorter recovery period according to Dr. Omar. Unfortunately, despite warnings to take it easy, rest, sleep, and not drink alcohol, he reported some would go out to a party and stay up all night.

A majority of the club sports athletes in the study praised the ATs as the most useful of all the resources during their post-concussion recovery. A couple mentioned that the athletic training program is considered one the best in the state. During daily check-ins with the ATs to gauge recovery from concussion symptoms, the student-athletes can develop a rapport and trusting relationship with the ATs. Furthermore, as Mr. Bryant expressed, “Once people find out what we do, and what we can provide for them, all of a sudden [we're] their best friend.” The ATs don't just provide concussion support in an open and safe environment; they provide injury prevention, nutrition, and training where students can improve themselves.

Barry, a rugby player, said the ATs were very helpful and got him “back to where he need to be.” Dexter, a hockey player, also praised the services and advised students to be truthful in telling the AT and doctor about how they feel day to day. “Buy into the system and communicate what’s going on because they can’t see through you... You're a liability if you go play for your team and you're not 100%.”

Some of the club sports athletes who played prior to the hiring of ATs attested to the major contributions the trainers have made including raising awareness about concussions and developing a strength and conditioning facility. The ATs also initiated a relationship with the Disability Resource Center (DRC) so that athletes with concussions who needed academic accommodations could receive the needed support.

Disability Resource Center

For students with lingering concussion symptoms that impacted their thinking such as mental foginess, difficulty concentrating, and remembering, the Disability Resource Center (DRC) offered temporary accommodations such as extended test time and note taking support as well as academic counseling. However, only three out of the ten students chose to avail of the services post-concussion. Other research participants said either they didn’t know about the services or determined that they didn’t think they needed it. Of the three, one had an Individualized Education Plan from high school with an eligibility of autism that qualified him for DRC services so he was already getting extended time for tests. According to the DRC director, Ms. Jackie, despite outreach efforts, brochures, and literature available to the students and the campus community, a stigma still exists related to disabilities, which may inhibit student-athletes from going

there. Many student-athletes declined to use the support but those who used the services tell DRC providers, "I wish I would have come here way before."

What the students may not have realized was that the Disability Resource Center informs instructors about the required temporary accommodations for extended time for testing but does not divulge the reasons for providing it. During orientations, students may not pay attention because they don't see themselves as person with a disability. As Ms. Jackie explains, "They're not really interested in rehabilitation, they're interested in getting back to the game."

A concussion is considered a temporary disability that qualifies students to use DRC services because the injury may cause functional limitations in reading, writing, or thinking. According to Mr. Bryant the AT, he offers DRC support to all concussed athletes, but since 90% of the concussions generally resolve within 10 days and the student would "probably be better within a few days...it's not worth utilizing those resources if they're unnecessary." He added if the athletes are "only suffering from a minor headache, minor dizziness, it's not affecting their cognitive function and their ability to perform in school, a lot of the athletes will opt not to use DRC because of the times that it takes." It has reportedly taken up to a week to gain approval but Ms. Jackie mentioned that processing is dependent on the students' availability to complete documentation and some applications have been processed the same day. She said she "has had coaches walk their player through the door."

Students who sought extended test time facilitated by the DRC, were concerned and anxious about having sufficient time to process information, respond, and successfully pass tests. Those who continued to have lingering concussion symptoms,

including memory deficits, expressed that they wished they had taken advantage of the services sooner. Shannon, a female rugby player who declined DRC support, said she worried about things in the classroom like taking notes, listening to the professor, and then doing math problems. She advised that it was important to take to things slow. She had suffered migraines and described her brain as “all jumbled up” which made it difficult to learn and to be herself. The kinesiology major student admitted that she hid her symptoms, stayed in too long during tournament play, and did not check in daily with the AT which prolonged her recovery. Like many of the research participants who were leaders in their club sport, she has since impressed upon her teammates the importance of using the campus resources and that she wished she had used the DRC.

Counseling and Tutoring

Counseling and academic tutoring were not formally offered to students post-concussion but a few participants sought these campus resources independently. Some mentioned feeling more emotional than usual or feeling withdrawn or depressed about their concussed state. One student discussed that the concussion resulted in personality changes and irritability and found the socio-emotional support from a sports psychologist and group therapy sessions the most beneficial resource during recovery. Social support used in athletic injury rehabilitation include support groups and peer modeling to help students mentally and physically handle the demands of rehabilitation and non participation in their sport (Bloom et al., 2004). The emotional distress related to sports injury can negatively affect the recovery process and can be aggravated for a team sport athlete who may feel pressured by teammates to return to play (Bloom et al., 2004). The unanticipated transition process for student-athletes may be difficult for those who may

be limited in their ability to adapt to change due to emotional or behavioral deficits or lack of resources (Pearson & Petitpas, 1990).

Those who sought academic support found help from their professors, formal tutoring services on campus, or informally through teammates or friends. Some students developed compensatory learning strategies on their own to cope with their struggles during recovery and set goals and expectations for themselves. That included taking copious notes, pre-reading, reading, and reviewing lecture notes and chapters, recording and re-listening to lectures, and spending more time than usual studying. Only a handful sought formal accommodations, support, or tutoring even when they faced academic difficulties.

Underutilized Resources

Referral to the DRC has been the main pathway offered to concussed athletes for academic support but was underutilized despite access to individualized attention by trained counselors. However, the support staff at the DRC has limited knowledge about head injuries and cannot offer cognitive rehabilitation therapy to help students relearn thinking skills. Students gave various reasons why they chose not to accept the support.

The neurological clinic run by speech-language pathologists on campus remained an untapped resource. During the course of the research study, I shared information and research about the role of speech-language pathologists in concussion rehabilitation and about the campus neurology clinic with the club sports manager, ATs, and campus physician. Traditionally, concussion treatment has not been part of the educational curriculum for SLPs, but SLPs are trained in cognitive rehabilitation and have provided individualized interventions in management of complicated concussion, which have led

to positive clinical outcomes (Sohlberg & Ledbetter, 2016). As part of their scope of practice, they also participate in prevention and wellness programs related to concussion and traumatic brain injury awareness (American Speech-Language Hearing Association, 2016).

Only a few students communicated with their teachers about their concussion. Others did not feel the need to mention their head injury. A professor told one of the participants that she could not receive accommodations without the DRC paperwork. For personal reasons related to not wanting to be labeled a student with a disability, Lola refused DRC services and neurological clinic support. She shared that had struggled emotionally, and had received little to no understanding from family and friends with her longer than anticipated rehabilitation. Determined to figure things out on her own, she turned to campus tutoring services instead because she was afraid failing grades would impact her financial aid. “I don’t think there’s anything or anyone that’s made a difference [in support]. It’s just me trying to push through. My parents don’t get involved.” Motivated to do well academically she admitted, “I think that I push myself too hard and probably one day I’m just going to breakdown.” She said she with work and school demands she did not have time to do daily check-ins with the athletic trainer.

Implications for Policy and Practice

In order for club sports athletes to access support services to assist them with recovery and transition to academic life, they must first recognize that the support services can be valuable to their overall well-being. A number of athletes refused external supports such as the DRC in anticipation that the concussion symptoms would eventually cease or resolve itself. Most of the students demonstrated self-reliant behaviors and

developed compensatory strategies to cope with learning difficulties, while adjusting to concussion symptoms and managing school or work demands on their own. The act of seeking help is a social process (Karabenick, 2004) and most college athletes will rely on their sports network or significant others to cope with pain or injury (Nixon, 1994). This behavior was found to be true with the athletes in the study as well. However, one student did suggest that some information or guidance about the campus resources that would best fit their personal circumstances and the benefits would help them make informed decisions about their needs.

Even peer leaders can be informal resources who can help change the culture by follow-up with the students by asking a teammate with a known concussion, “How’s school?” or “How are you doing?” to help in creating a community of support and trust. Ultimately, this may lead to encouraging help-seeking behaviors in collegiate student-athletes within the club sports community and more positive outcomes.

Another important factor is club players need to realize that a brain injury is “a big deal” and that ignoring symptoms, playing through injury, and not following doctor or AT recommendations or advice can have serious consequences. Some demonstrated lack of compliance by not following up on monitored visits post injury. Perhaps the decision by some not to seek academic support could be partially due to the athlete mindset to “tough things out” and not ask for help. Athletic culture tends to celebrate players who demonstrate toughness, manage to play through any pain or injuries, and focus on winning at all costs (Wandling & Guillaumondegui, 2015). For elite athletes who may be on scholarship, compliance to health recommendations is not an option and

is closely monitored because recuperation and playtime will be directly impacted.

Perhaps more compliant behavior should be expected from club sports athletes as well.

Growing clinical evidence has shown that engaging in physical and cognitive activity with an injured brain could lengthen recovery and make symptoms worse (Halstead et al., 2013; McCrory et al., 2013; Meckler, 2014). Unfortunately, students in the study felt the need to study more rather than cutting down on study time especially if they were enrolled in upper division courses for their major, failing classes, or had important exams. For some, the stresses of keeping up with coursework material and making the grade or losing financial aid support also added to the dilemma. All reported some difficulty focusing, recalling, or retaining information at some point after the concussion.

This study also discovered that college students in the study do not have the same expectations as that found in the K-12 settings where students rely on the educational system to provide needed services and intervention to help them readjust and reintegrate into the academic environment (Bowen, 2005). However, the club sports program and the main service providers can play a significant role in shaping concussion awareness, policies, and protocols for this rather large population of student-athletes. They have an opportunity to continue to educate the campus and athletic communities about this major health concern, develop resources, and to create a culture that fosters, supports, and addresses the needs of student-athletes experiencing concussion injury. The club sports athletes who agreed to participate in the study felt motivated by the chance to contribute to research on sports related concussions and the opportunity to bring more recognition,

awareness, and potentially increased resources to sports clubs. Recommendations for practice and future research are offered as a result of the study's findings.

Recommendations for Practice

Based on existing literature on sports related concussion, information on RTL and RTP as well as study findings, the following recommendations for practice are suggested as areas of need: concussion education, public awareness, widespread interprofessional concussion management, and procedures and policies that would support academic performance during recovery (Sady et al., 2011).

First of all, research participants acknowledged that concussion education through club sports program orientations and handouts about concussion, their own research, and personal experiences helped reduced their risk-related behaviors (Kroshus & Baugh, 2016, p.182). Increased athlete awareness of the potential dangers of concussion injury helped create a culture of support and understanding by the athletic community of this previously hidden and taboo topic. Some disclosed that after learning about the signs and symptoms of concussions they might have had more incidents that were unrecognized and unreported. The more student-athletes understood about concussions and were educated on the associated risks, the more likely they were to report details of their injury and provide clinicians with vital information to properly identify and manage the concussion (Bramley et al., 2012; Littleton & Guskiewicz, 2013). Helping students understand the effects of a concussion and how to manage their symptoms has been an evolving progress and needs to continue to be reinforced. Dr. Omar suggested that concussion education should also include informing the injured athletes about the process, why certain things are being done, why the students are treated in a certain way,

and why they have to go through a progression to get healthy at an appropriate level to return to school life.

Concussion education for the athletes about the signs and symptoms of concussions on paper and at an orientation at the beginning of the year might not be enough to reinforce expected behaviors. Perhaps a verbal testimony or a video about the effects of a concussion can be created and replayed because some students may ignore the message thinking that it will not apply to them. Perhaps an informational video addressing college level players on the signs, symptoms, RTL/RTP, and suggested resources could be made to include testimonials from student-athletes like the ones in this study and be replayed as necessary. Concussion education needs to be an ongoing endeavor before, during, and after injury occurs.

Second, to increase public awareness of concussions, perhaps a symposium for the campus community with experts on concussion would help facilitate a greater opportunity for dialog and increased understanding. As Marx (2014) indicated, in order to be effective, education institutions need to be flexible. The symposium could build greater awareness about concussions, provide fundamental information about the signs and symptoms of concussions, explain what to expect during recovery, and what the available resources specifically offer. Other topics could include information on sports safety and concussion prevention, coping with a concussion injury, classroom strategies for educators and students, and presentations on concussion research studies.

Third, concussion management is essential so that concussions can be properly identified and treated and so that student-athletes will be able to recognize the signs and symptoms of a concussion and seek appropriate medical care (United Educators, 2014).

Perhaps a meeting with existing campus departments and resources would provide an opportunity to discuss potential interprofessional collaboration and interprofessional education especially in the allied health fields. Openly examining this topic at a time of heightened interest can bring the knowledge to empower greater understanding and ignite a call to action. It is crucial then to determine who is professionally trained and available to actively monitor certain deficits that accompany concussion injuries. The concussion team could collaborate in managing the needs of the students or at the very least, provide concussion education and awareness to the entire school community to prevent concussions, raise consciousness about concussion safety, and the process of post-concussion rehabilitation.

Students with concussions would benefit from a multidisciplinary team approach to help with recovery and the anticipated difficulties of returning to the school setting (Halsted et al., 2013). Overall, successful concussion management requires that the team understands the neurocognitive and neurobehavioral symptoms related with sports concussions so that the athletes can succeed in returning to athletic, academic, and social activities (Porter et al., 2014). To assist with successful return to the academic environment and classroom, attention needs to be placed on appropriate academic accommodations within institutional guidelines as well as engaging campus resources for cases that cannot be managed through accommodations or schedule modifications (Buckley, Baugh, Meehan & DiFabio, 2017).

Perhaps the creation of a concussion care unit as part of the existing student health center could be an added benefit to better facilitate concussion management and could provide additional care and support for all students regardless of their athletic affiliation.

This of course would require further investigation on its feasibility and funding sources. In cooperation with the athletic training facility, existing student health center services could be coordinated to provide students informed access to health, wellness, and academic resources. Health and wellness services already offered on campus provide contact with doctors, nurses, chiropractors, massage therapy, acupuncture therapy, nutritional counseling, meditation classes, and clinical health education. There are many health professionals working within their scope of practices that teach on campus and can be tapped for inclusion in a multi-faceted concussion management team including physical therapists, speech-language pathologists, audiologists, psychologists, and public health providers. Members in the educational field that instruct or tutor should also be included in the conversation to better understand the needs and resources related to post-concussion academic reintegration.

Although there is no guarantee that the collegians would use the resources given their known resistance to seeking help, through concussion education or policy procedures, perhaps they could make more informed choices. If protocols or specific pathways to rehabilitation or recovery were created to include academic reintegration, the potential is clear. When asked what kind of improvements could be made on campus, Vivian, who participated in club sports as an undergraduate and graduate student, suggested more awareness about concussions and its long-term effects and to push or strongly suggest to athletes to use the resources available. Perhaps individualized advisement could include a list of campus resources that could help students make informed choices on the best course of action to find appropriate supports.

Fourth, with regard to policies or procedures related to academic support for students, one must keep in mind that “the goal is to support the recovering student to keep up with academic demands in a way that does not overstress the cognitive functions and result in worsening symptoms (McGrath, 2010, p. 494). The spotlight on recovery post-concussion needs to be shared on the cognitive rehabilitation process so that students can better cope with academic demands and educators can better understand and prepare for students with concussions.

The student-athletes in this research study experienced varying degrees of physical, social-emotional, and cognitive challenges post-concussion along with their concussion symptoms (Hux et al., 2010). Athletic Trainers are well educated on the physical side of a concussion but place less emphasis on the other areas impacted by concussions such as the cognitive and socio-emotional aspects. Cognitively, the collegians expressed frustrations about their struggles with thinking, processing, and remembering information, which meant longer studying, making adjustments in daily living, and figuring out ways to compensate for their difficulties. Social-emotionally, students described feeling more emotional than usual, being irritable, having changes in personality both immediate and lingering. These deficits highlighted the need to monitor all aspects of impairments especially because too much cognitive activity too soon can further stress the brain that is already in a vulnerable state and could lead to a longer recovery (Litteton & Guskiewicz, 2013).

Most importantly, integrating a Return to Learn (RTL) protocol with the existing Return to Play (RTP) protocol might increase the professional monitoring of the cognitive and socio-emotional deficits that impact student learning. The RTL process was

largely self-monitored by students who may have had lingering executive function deficits, or the inability to self-regulate behavior and thinking, and did not appear to know how to advocate for themselves (Kennedy, 2017). Despite the current differentiation between RTL and RTP pathways, athletes need both the physical ability on the playing field and the cognitive ability to function in anticipating movements and remember plays and signs. The current practice of separating the pathways of recovery as RTL and RTP rather than integrating the two components has resulted in a heavier focus on the physical side of the recovery and less on the cognitive and emotional signs and symptoms of concussion. Perhaps uniting the two concepts can be thought of as treating the whole client during the post-concussion rehabilitation process rather than separating the mind as return to learn, from the body as return to play. After all, playing sports requires both physical and mental demands. Learning takes place on the field as well as in the classroom. As baseball hall of famer, Yogi Berra quipped, “Baseball is 90 percent mental, the other half is physical” (Scott, 2015). Perhaps examining the process in the context of the transition through the components of self, situation, support, and strategies (Schlossberg et al., 1995) would allow service providers to evaluate and monitor the assets-liabilities balance of individuals as situations change during the transition from concussion to return to sport and school. Interpretation of this information however, requires professional training or better yet an interdisciplinary approach to concussion management.

Extrapolating from Schlossberg’s 4S concept, the various aspects of the athletes’ “self” or background, circumstances, and competencies can help in the overall assessment of the “situation” in terms of a student’s capabilities and any concerns

(physical, cognitive, emotional, and sleep) they might have. “Supports” could be adjusted with coordinated channels of collaborative care so that in choosing appropriate “strategies” choices are available based on the challenges at hand. The information gathered for each of the four quadrants could be considered in the context of return to school or sport. Collectively these elements, can be seen as assets and liabilities that may change and shift during the transition. For instance, supports might be most needed at the beginning of the injury, but less necessary as the student athlete’s situation improves. Or, learning strategies could be advised based on the challenges or current circumstances/competencies of the student. It would assist the case manager in gaining a broader picture of the student’s overall status, including academic and athletic functions, during the period of transition and changes. These considerations are visually represented in Figure 2, Post-concussion transition considerations model.

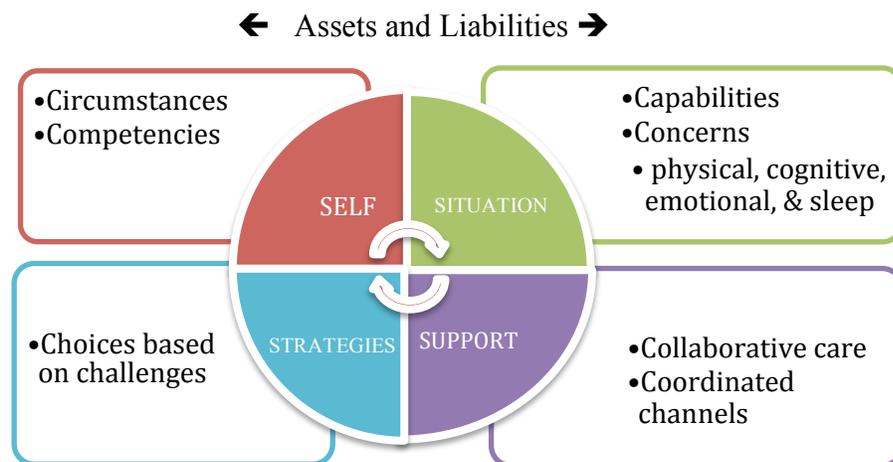


Figure 2. Post-concussion transition considerations model. Adapted from Schlossberg, N.K., Waters, E.B., & Goodman, N.J. (1995). *Counseling adults in transition: Linking practice with theory* (2nd ed.). New York, NY: Springer Publishing Company.

Classroom Challenges

Gauging a student's state of well being and performance is essential to recovery but may not be an easy task if educators as well as students themselves are not aware of the signs and symptoms to look for after a concussion. Educators need to understand that students recovering from concussion injury may not be able to keep up with the usual expectations for homework completion or class participation until symptoms have cleared and neurocognitive function has recovered to normal (McGrath, 2010). Raising awareness of the struggles students with TBI encounter when returning to a full academic load would assist the educational and athletic communities to understand and better serve the students as they recover from injury. Developing a uniform support system for academic reintegration can be challenging since recovery to pre-injury functioning varies with each individual and students may experience uneven cognitive performance (Deidrick & Farmer, 2005).

One thing missing in the process of academic reintegration was providing the college students with learning strategies that acknowledged the cognitive impairments of attention, memory, organization, and information processing often associated with traumatic brain injuries such as concussions (Bowen, 2005). Suggestions specifically geared for college or university students experiencing cognitive impairments related to a concussion have been outlined based upon the findings of this study and suggestions from the athletes themselves. The findings of this study informed the creation of Table 8: Learning Strategies for College Students with Concussions. The first column on Table 8 has a brief description of the four areas: attention, memory described as working memory, short term, and long term memory; organization, and information processing. In

Table 8

Learning Strategies for College Students with Concussions

Cognitive Impairment		Learning Strategies
<p>Attention Focusing on a specific activity, task or behavior. Attention may be focused, sustained, alternating or divided (Kennedy, 2017)</p>		<ul style="list-style-type: none"> • Know what time of day your brain functions best such as after a nap or early in the morning • Minimize distractions, change bright lighting if needed • Break up tasks into smaller ones • Write down step-by-step calculations • Visualize images associated with text • Take a physical break from task • Set a timer to take frequent breaks if necessary • Do breathing exercises to refocus and re-energize • Look up somewhere like the sky or take a mental break
<p>Memory</p>		<ul style="list-style-type: none"> • Jot information right away on paper, phone, tablet or computer • Avoid distractions or interruptions, create a study space • Minimize memory load by chunking information • Break down tasks and instructions into simple steps • Ask yourself questions about material • Review lecture notes within an hour after class • Make checklists, flash cards, post-it notes • Use calendars and planners or smart phone to jot important dates, times & deadlines • Designate a space for items like keys, books, glasses • Audio record information to review • Use visual images, acronyms, or mnemonic devices to assist with recall and make associations • Highlight, underline, and jot down key ideas in the margins • Frequently review and repeat information out loud • Put information into a song to stimulate auditory recall • Make visual aids charts, graphs, pictures to recall information • Prime memory by pre-reading or reviewing vocabulary or concepts before class, then re-read and review information • Rehearse information before giving an oral presentation • Take practice test to help with long term memory • Employ kinesthetic movement and tactile cues to store information • Connect information to real world experiences, scenarios
<p><i>Working memory</i></p> <ul style="list-style-type: none"> • holding information in mind to use as a mental workspace to manipulate data 	<p><i>Examples</i></p> <p>Web address, PIN, telephone number, directions</p>	
<p><i>Short term memory</i></p> <ul style="list-style-type: none"> • holds data for 15-30 seconds (Atkinson and Shiffrin, 1971) • amount of information that can be stored varies • dismiss or store in long term memory 	<p>List of items, main ideas of a concept, steps to calculate a formula; game signs or plays</p>	
<p><i>Long term memory</i></p> <ul style="list-style-type: none"> • stores, manages, retrieves information for an extended period of time ✓ Report difficulties to physician ✓ Consult Speech-Language Pathologist for support in cognitive rehabilitation. 	<p>Organizing information into categories or associations; names, dates, birthdays game plays, signs, strategies</p>	
<p>Organization Ability to store information to use later, to logically complete tasks in order of steps.</p>		<ul style="list-style-type: none"> • Highlight important information worth remembering • Create a symbol while note-taking for items on a future test • Create a visual schedule of activities/appointments, special occasions, important events, and class projects • Create checklist for completing tasks or assignments • Use daily planner/calendar to jot down assignments and review time period needed to complete tasks • Consider group study with peers • Follow a routine and divide tasks into smaller ones • Draw or sketch information for visual cues • Create a memory notebook, set priorities • Resist the temptation to multi-task which taxes the brain • Create a study environment that is distraction free • Consider doing tasks when you have most energy • Cross off, check off, or celebrate completed tasks
<p>Information Processing The brain's ability to efficiently and effectively handle information automatically or deliberately as it enters the system (Malia, Raymond, Bewick, & Bennett, 1998)</p>		<ul style="list-style-type: none"> • Highlight or color code information • Use graphic organizers such outlines or tree maps to make associations with material or flow charts to sequence data • Use digital recorders to review information • Allow self extra time to process information • Spread information over time to increase retention

the second column are suggested learning strategies specifically related to those deficit areas. All the students complained about the inability to focus, retain information, as well as slowed information processing. These suggestions may also help the students better understand their impairments while they recover from injury. A number of students indicated that since their memory was affected, organizing day-to-day functions became a necessary adjustment. Some examples of strategies to help with attention included minimizing distractions, breaking up tasks into smaller ones, and knowing what time of day one's brain functions best. Jotting information like appointments down right away, making checklists, designating a specific place to store items like keys and glasses, and resisting the temptation to multi-task would assist with memory and organization. A student shared that just taking a few minutes simply to look up at the sky helped provide a mental break from studying. Using graphic organizers to outline ideas or using visual imagery to make associations with coursework concepts, and using a digital recorder to review information would assist with information processing as well as recalling information.

All in all, it was evident that academics carried a considerable priority for many of the student-athletes in the study who experienced difficulties in at least one or more of these areas. Perhaps this table of suggested learning strategies could be provided to the club athletes post concussion during their monitored check-ins with the AT as part of concussion education. Furthermore, a list of questions such as the ability to concentrate during classes could be numerically scaled as part of the existing protocol for concussion monitoring. This idea would require further research and design, however this table is a

preliminary step in that direction. With this information, formal support resources could be assigned or suggested to the students.

Recommendations for Future Research

The following additional recommendations are offered in terms of future research, which may impact practice and policy and expand understanding of this topic. The suggestion of integrating the pathways of Return to Learn and Return to Play needs to be explored further in terms of monitoring the signs and symptoms of recovery from a concussion in terms of physical, cognitive, emotional aspects as well as any sleep disturbances. This may involve integrating procedures and protocols, more collaborative care between service providers, and increased concussion education before, during, and after a concussion incident. What would it entail to integrate RTL and RTP policies and procedures and what would the implications be of such a reform? How can RTL and RTP be better integrated across educational settings including K-12, junior college, and at colleges and universities? The perspectives and concerns of other stakeholders including teachers, professors, administrators, coaches, and parents may be studied to provide additional insights on the post-concussion experience.

Further studies on the competitive nature of club sports athletes and focusing on the needs and unique experiences of this growing population of student-athletes is certainly warranted. The impact of concussion education and increased public awareness through news and social media merits investigation. Extending this research to other areas related to the concussion experience might include, a comparison of practices of other club sports programs at other four universities or two-year institutions with regard to their return to learn and return to play protocols; the impact of cultural mindsets and

perceptions of student-athletes with concussion injuries; the behavior and emotions related to post-concussion rehabilitation and recovery; or the effects of neuroplasticity, defined as the brain's ability to change or adapt based upon experiences, during concussion rehabilitation. Changing attitudes toward concussion reporting and its impact on youth sports may also be explored. The subject of sports related concussions carries so many potential dimensions that could be investigated through further research.

Limitations

Sports related concussions have evolved into a multi-faceted topic of great public interest. This body of work presented some of the most recent research related to the overall topic in addition to firsthand accounts of the challenges related to re-entry to the classroom post-concussion. Due to the evolving nature of the subject matter and timeliness in terms of increased public concern on concussions, some of the sources included current news coverage, digital media, and reports from health care organizations. Even with greater public sensitivity about concussions and the impact of traumatic brain injury, concussion experiences can be a difficult topic to discuss. To maintain the confidentiality and trust of the research subjects, as a researcher, I had to rely on their willingness to divulge personal information, without the benefit of medical records or academic transcripts to verify their claims. Although this phenomenological case study represented a small sample of a much larger club sports population and cannot be generalized, the goal was to explore the experiences of this rarely studied group, discover findings that are informative, and to provide suggestions for future practices and research. Since there is no national association that provides oversight on club sports as a whole, no figures are available on the current population of club sports athletes. The

expanding club sports program at Century University however, is reflective of this growing nation-wide phenomenon which was estimated at two million and growing (Pennington, 2008). The perspectives provided by the student-athletes in the study offered invaluable and varied insights related to their needs and sentiments of their concussion experiences.

Conclusion

This study sought to investigate the process of academic reintegration for sports club athletes with concussions and the resources that were useful to them during the transition period toward recovery. In-depth interviews with the student-athletes and the main campus representatives who provided them with support presented an opportunity to contribute to the research about concussions on this rarely studied but rather large population. The more the education and athletic communities know about brain injury and the difficulties students face post-concussion, the better schools can assist students who struggle with accessing curriculum. Overall, the study underlined the need for concussion education throughout the concussion process – before, during, and after a concussion occurs. Prior to injury, education would serve as a preventative measure by increasing awareness and recognition of the signs and symptoms and procedures related to concussions. Post-concussion education would assist individuals to understand their concussion injury, what to expect during recovery, and the importance of compliance with recommendations and monitoring by certified health professionals. Advising student-athletes on the various resources or clear explanations about the significance of each would be recommended and was requested by the participants. Speech-language pathologists could play a greater role in concussion rehabilitation and the development of

a RTL protocol since they are trained on traumatic brain injury treatments relating to cognitive function such as attention and memory. Audiologists can address balance and hearing issues. A multidisciplinary team approach with other allied health professionals could benefit the students and would involve more of the campus community.

Developing a collaborative partnership with the AT, Health Center, psychology services, the Disability Resource Center, tutoring services, and the neurology clinic could result in improved and expanded services and could provide opportunities for graduate student training in higher education or future research.

The “toughing it out” mentality often observed on the athletic field appears to be carried out in the academic arena. Most students demonstrated self-reliance and chose not to use resources unless they were in danger of failing. According to literature, college students do not typically demonstrate help-seeking behaviors unless they are struggling academically (Karabenick, Knapp, & Levin, 1991). Most students hoped the symptoms would just get better or go away and preferred to figure things out on their own. For many this meant longer study times and frustration with a poor memory. Some admitted that they usually do not ask for help and liked to figure things out on their own. Culturally and socially, some were raised to be independent and not ask for help.

The most disturbing finding was that multiple students considered their concussion “no big deal” but at the same time expressed concern that another brain injury could affect their future. Perhaps students did not think of a concussion as a disability because they could still walk, talk, and perform most functions of daily living. A couple of students reported lack of empathy from their family or teammates because they looked physically fine which relates back to a concussion being considered an “invisible injury”

(Kish & Koutures, 2016, p. 28; Bloom et al., 2004, p. 519). In addition, disability-related stigma or discrimination may also play a part in the students' hesitancy to accept services (Antonak & Livneh, 2000; Chatfield & Cottingham, 2017; Zheng, 2016). This is something that the Ms. Jackie, the DRC director acknowledged. Despite an increase in referrals to the DRC within the last three years of students with concussions, only a quarter of all students actually use the services.

For the club athletes, the love of the game drew them to continue playing sports in their collegiate years. This study presented factors that impact the academic lives of student-athletes after experiencing a sports-related concussion. The findings suggest that college students need guidance and support to monitor not only the physical difficulties associated with concussions, but the cognitive and socio-emotional deficits that may accompany the invisible injury.

After a concussion, thinking and information processing is often impaired but at college age, students have the right to make decisions on whether or not to seek support. Students at Century University have benefitted by the professional expertise of athletic trainers on and off the field to manage their overall needs as athletes. Compliance with recommendations from doctors and ATs have been key to recuperation and eventual return to play but does not always occur, impacting recovery time. To avoid boredom, students have shown difficulty complying with limiting or completely avoiding cognitive activities, which are routine to their day such as communicating by text with teammates and friends (Sady et al., 2011).

In addition, the study's findings suggest that the component of returning to learn was not as well developed or closely monitored with regard to cognitive rehabilitation or

socio-emotional needs. Referral to the Disability Resource Center was the main service offered but most students sought alternate ways to support their study needs including campus tutoring, making their concussion known to their professors, joining study groups, and spending extended study periods to retain information. Although researchers and practitioners have separated the post concussion pathways of recovery as Return to Play and Return to Learn, the two areas need to be integrated so that not only physical, but also cognitive and emotional aspects are well understood and monitored with frequency. For student-athletes, learning does not just take place in the classroom. It is essential for players be able to engage in and prepare for the mental as well as the physical demands when returning to sport and school.

Many of the club athletes yearned to return to sport after their concussion because they considered it a social and physical outlet that made school life enjoyable. During the transition period, academic struggles and irritability become overwhelming for some due to failing exams, grades, and classes. A handful sought tutoring, counseling services, and the DRC. There were several personal reasons why some students chose not to accept the support of the DRC, which was the main academic support offered to them. This ranged from not realizing that the services were available, having to deal with the paperwork needed to gain eligibility for services, thinking that they would be fine without it, the stigma of a disability being on their record, and thinking that accepting services meant admitting that the symptoms were taking longer than expected to heal.

It seemed certain that students would use available services if provided but this study revealed that help-seeking behaviors were not characteristic of the college population. The study found that students needed to find value in the resources in order to

use them. Club sports concussion policies and procedures provided student-athletes with education materials, learning opportunities, and prevention information. Pre-participation exams, concussion follow-up and progressions for return to play and return to learn were addressed by the athletic trainers who worked with the student health center physician, to meet the health care needs of the students on a case by case basis. Athletes are expected to report their head injuries and those of their teammates, so this has created a certain level of awareness and openness about concussions on campus.

The study showed that continuous education about the signs and symptoms of concussions is warranted. Strong encouragement and coaxing to follow prescribed check-ins and expert professional advice during recovery was needed. Perhaps concussion education may include an orientation for concussion-injured athletes on what to expect when they have a concussion including some counseling with a list of possible campus resources for support, what they offer, and their significance during recovery.

Final Reflections

A number of unexpected outcomes resulted from this study. First, the vast amounts of new information and studies have increased tremendously since the inception of this research three years ago. A computer search under “concussion” back then yielded few entries and a search under “traumatic brain injury” yielded more. Now a search provides hundreds of thousands of entries related to both. News stories related to concussions appear almost daily.

Concussion is a multi-faceted subject, which has raised many eyebrows. It has moved out of the shadows and into the light where student-athletes, coaches, parents,

healthcare providers, educators, and legislators are willing to talk more openly to find answers and develop solutions to this significant health and safety issue.

I felt honored to be the recipient of the personal stories shared by the study participants who were willing to discuss their concussion experiences. I was truly surprised to find that most students did not seek academic support, even as they were struggling with the day-to-day transitions back to the classroom. They appeared to show a certain resiliency not uncommon in the athletic world, or perhaps, a stubbornness of wanting to do things on their own and not rely on others for help. These actions may be viewed as resiliency, whereas others might see this as lack of compliance. I contend that resiliency, defined as external and internal resources used to cope and bounce back when faced with tough times (Nourse, 2015), is an asset that can be drawn upon. It exists as an added layer of protection or self-preservation that connects the four components of self, situation, support, and strategies throughout the process of recovery and rehabilitation, including academic reintegration.

In the end, perhaps the most surprising of all, was that students minimized their brain injury as “no big deal” yet worried that another concussion could affect their future. Many thought that their concussion did not warrant seeking academic resources or support. One soccer player with multiple concussions and post-concussive syndrome said she didn’t feel unable; she just “had to work a little harder.” She said that she got so used to the symptoms that it became a routine until her parent told her that having daily migraine headaches was not normal.

My research journey has connected so many parts of my life as a doctoral student, parent, speech-language pathologist, former teacher, Little League manager, and

journalist. These experiences gave me the investigative tools with which I sought information and approached my research. This study allowed me to look at concussion experiences from several angles and to reflect on their significance. My aim was to add to the concussion conversation which would bring forth better understanding, guidance, and future contributions to the field.

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Appendix B
Student Interview Protocol

I. Pre-interview Session: Introduction/Background

Welcome and introduction:

Good morning/afternoon/evening. Thank you for taking the time to participate in this research study. Before we begin the interview, I'd like to give you the opportunity to read and sign the Consent to Participate in Research.

Purpose of the interview:

This one-on-one interview is intended to collect information for a research study that explores post-concussion academic integration experiences of club sports athletes. During this interview, we will talk about your experiences as an athlete returning to academic learning after the injury.

Confidentiality:

Any information that you share with me today will be used for research purposes only. I will be aggregating results from all interviews. Personally identifiable characteristics, such as your name will not be used to identify you in any report or document. Today's interview session will be audio-recorded and transcribed for analysis. Notes will be taken of the conversation. The audio recorded file, transcribed file, and notes will be stored securely in a password-protected laptop until completion of interview analysis. Upon completion of analysis, files and notes will not be destroyed and may be used for future research. Only the researchers identified in the Consent to Participate will have access to the files and notes. The files and notes will be accessed and analyzed in strict confidentiality. Finally your name or personally identifying information will not be used in any published or public reports.

Informed consent:

This consent notice summarizes some information from the Consent to Participate in Research and communicates the procedures, potential risks and discomforts for participants, potential benefits to participants, payment to participants for participation, participation and withdrawal, and rights of research participants. Procedures in this interview are limited to semi-structured personal interview sessions. Because the study deals with issues that are sensitive, some interview questions may involve issues of a personal nature. You may feel uneasy about answering some of these interview questions. You may elect not to answer any of the questions with which you feel uneasy and still remain as a participant in the study. You may not benefit personally from your participation in this study. However, findings from this study may provide insights into resources for students dealing with signs and symptoms of concussions and may contribute to knowledge on the subject. Interview participants will not be paid for their participation in this interview. Your participation in this interview is voluntary. You are

not obligated whatsoever to answer or respond to any question or to discuss anything that you are not inclined to answer or discuss. You can skip any question, or any part of any question, and will not face any penalty for answering, or not answering, any question in any way. You may ask that the audio recording be stopped at any time and/or may leave the interview at any time for any reason without consequences of any kind. You may withdraw consent at any time and discontinue participation without interview. You can halt your participation in the interview at any time. You are not waiving legal claims, rights, or remedies because of your participation in this interview.

Identification and contact information of principal investigator:

If you have any questions, concerns, or comments about this research and your participation in this study, you may contact the following: Felicia Conlan via email at Felicia.Conlan.359@my.csun.edu or by text or phone at (818) 399-0695. In addition, you may contact the following: Dr. Dimpal Jain via email at dimpal.jain@csun.edu or office telephone at (818) 677-7895.

Timing:

Today’s interview will last approximately 60 minutes. Are there any questions before I get started?

II. Interview Session Main Questions:

Before we begin, I would like to confirm the information you provided:

Sport played: _____ Age: _____ Undergraduate major _____

When did the concussion(s) occur? _____

1. Self

- a. What do you recall about the day the concussion happened?
- b. What information did you receive about the signs and symptoms of concussions prior to injury?
- c. Resilience: As an athlete, how do you usually handle difficult situations? Do you ever ask for help?

2. Situation:

- a. What physical changes did you experience after the concussion?
- b. How soon after the injury did you return to classes?

- c. How soon after injury did your return to practice or playing?
- d. Resilience: What other changes did you notice and how did you handle it?

3. Support:

- a. What, if any of the academic support services were offered to you?
(Probe: Please describe them and how they became available.)
- b. What academic services did you use?
- c. Resilience: What motivated you to seek support?
- d. Whom or where did you find the most support?
- e. Resilience: If you did not seek support, why?
- f. What made the difference during your recovery?
(reference to internal/external resources)

4. Strategies:

- a. What strategies were suggested to you in returning to the classroom?
- b. Which strategies were the most helpful?
- b. Resilience: What advice would you give other students who are experiencing concussions?

Based on the answers to the questions such as these, follow-up questions will be used to probe, clarify, or further reflect on their answers.

Closing Questions:

Do you have anything else to add at this time? Have you said everything that you wanted to say but didn't get a chance to say? Have you shared everything that is significant about these experiences with me? If there's anything else that you recall after our interview session, I invite you to share it by contacting me.

III. Post-Interview Session: Debriefing and Closing

Thank you for participating in today's interview and sharing your perspectives on this important topic. Your time is greatly appreciated. I also want to restate that what you have shared is confidential. No part of our discussion that includes names or other identifiable characteristics will be used in any report or document. Finally, I want to provide you with a chance to ask any questions that you might have about this interview. Do you have any questions at this time?

Appendix C
Campus Resources Interview Protocol

I. Pre-interview Session: Introduction/Background

Welcome and introduction:

Good morning/afternoon/evening. First of all, thank you for taking the time to talk with me today. Before we begin the interview, I'd like to give you the opportunity to read and sign the Consent to Participate in Research.

Purpose of the interview:

As we discussed, the one-on-one interview is intended to collect information for a research study that explores post-concussion academic integration experiences of club sports athletes. During this interview, we will talk about your interactions and experiences working with the athletes returning to academic learning after the injury.

Confidentiality:

Any information that you share today will be used for research purposes only. Results from all interviews will be aggregated and will not be attributed to any particular person. Personally identifiable characteristics, such as your name and the school, will not be used to identify you in any report or document.

Today's interview session will be audio-recorded and transcribed for analysis. Notes will be taken of the conversation. The audio recorded file, transcribed file, and notes will be stored securely in a password-protected laptop until completion of interview analysis. Upon completion of analysis, files and notes will not be destroyed and may be used for future research. Only the researchers identified in the Consent to Participate will have access to the files and notes. The files and notes will be accessed and analyzed in strict confidentiality. Finally your name or personally identifying information will not be used in any published or public reports.

Informed consent:

This consent notice summarizes some information from the Consent to Participate in Research and communicates the procedures, potential risks and discomforts for participants, potential benefits to participants, payment to participants for participation, participation and withdrawal, and rights of research participants. Procedures in this interview are limited to semi-structured personal interview sessions. Because the study deals with issues that are sensitive, some interview questions may involve issues of a personal nature. You may feel uneasy about answering some of these interview questions. You may elect not to answer any of the questions with which you feel uneasy and still remain as a participant in the study. You may not benefit personally from your participation in this study. However, findings from this study may provide insights into resources for students dealing with signs and symptoms of concussions and may

contribute to knowledge on the subject. Interview participants will not be paid for their participation in this interview. Your participation in this interview is voluntary. You are not obligated whatsoever to answer or respond to any question or to discuss anything that you are not inclined to answer or discuss. You can skip any question, or any part of any question, and will not face any penalty for answering, or not answering, any question in any way. You may ask that the audio recording be stopped at any time and/or may leave the interview at any time for any reason without consequences of any kind. You may withdraw consent at any time and discontinue participation without interview. You can halt your participation in the interview at any time. You are not waiving legal claims, rights, or remedies because of your participation in this interview.

Identification and contact information of principal investigator:

If you have any questions, concerns, or comments about this research and your participation in this study, you may contact the following: Felicia Conlan via email at Felicia.Conlan.359@my.csun.edu or by text or phone at (818) 399-0695. In addition, you may contact the following: Dr. Dimpal Jain via email at dimpal.jain@csun.edu or office telephone at (818) 677-7895.

Timing:

Today's interview will last approximately 60 minutes. Are there any questions before I get started?

II. Interview Session Main Questions:

1. How do you help students with concussions?
2. How does the program support students? What accommodations or modifications are offered?
3. How responsive are students to receiving services?
4. What kind of follow-up is done to help the athletes Return-to-Learn?
5. How do professors/faculty respond to students with concussions?
6. Do many students use the services available to them? What outreach is done to let athletes know about the services?
7. Is any time devoted to educating the students about the signs and symptoms of concussions? Is any time devoted to informing the campus community about concussions?
8. What strategies do you suggest to students with concussions as they return to their student life? And Return-to-Play? And Return-to-Learn?
9. What interprofessional collaboration or concussion management takes place on

campus when it comes to students with concussions?

10. Although concussions are an individual occurrence, have you seen any patterns in the students' abilities to return to school life?

Closing Questions:

Do you have anything else to add at this time? Have you said everything that you wanted to say but didn't get a chance to say? Have you shared everything that is significant about these experiences with me? If there's anything else that you recall after our interview session, I invite you to share it by contacting me.

III. Post-Interview Session: Debriefing and Closing

Thank you for participating in today's interview and sharing your perspectives on this important topic. Your time is greatly appreciated. I also want to restate that what you have shared is confidential. No part of our discussion that includes names or other identifiable characteristics will be used in any report or document. Finally, I want to provide you with a chance to ask any questions that you might have about this interview. Do you have any questions at this time?

Appendix D
Document Review Protocol

Document Title:

Date of document: _____

Date Reviewed: _____

Reviewer(s): _____

Document content analysis will include the number of times the words return to learn, concussion, return to play, and resources are expressed in the document.

WORD	CONTEXT	NUMBER
Return to Learn		
Concussion		
Return to Play		
Resources		

Appendix E
California State University, Northridge
CONSENT TO ACT AS A HUMAN RESEARCH SUBJECT

**Concussion to Classroom: Post Concussion Academic Reintegration
of Collegiate Club Sports Athletes**

You are being asked to participate in a research study, Concussion to Classroom: Post Concussion Academic Reintegration of College Club Sports Athletes, a study conducted by Felicia Sison Conlan as part of the requirements for the Ed.D. degree in the Educational Leadership and Policy Studies program of the Michel D. Eisner College of Education. Participation in this study is completely voluntary. Please read the information below and ask questions about anything that you do not understand before deciding if you want to participate. A researcher listed below will be available to answer your questions.

RESEARCH TEAM

Researcher:

Felicia Conlan
Department Educational Leadership and Policy Studies
(818) 399-0695
Felicia.Conlan.359@my.csun.edu

Faculty Advisor:

Dr. Dimpal Jain
Department: Educational Leadership and Policy Studies
18111 Nordhoff St. Northridge, CA 91330-8265
(818) 677-7895
dimpal.jain@csun.edu

PURPOSE OF STUDY

The purpose of the study is to examine the experiences of club sports athletes post-concussion. More specially, to discover what academic supports the student- athletes use when they transition back to the classroom after a sports-related traumatic brain injury.

SUBJECTS

Inclusion Requirements

You are eligible to participate in this study if you are 18 years old or older, an athlete who participates or participated in club sports at the university, and experienced a concussion or multiple concussions related to sports within the last five years. You are also eligible if you provide assistance or resources to collegians with concussive injuries

Exclusion Requirements

You are not eligible to participate in this study if you have not experienced a sports-related concussion or do not provide assistance or resources to students with concussive injuries.

Time Commitment

This study will involve approximately one hour of your time.

PROCEDURES

The following procedures will occur: Before students begin the study they will be provided with a consent form. Students will participate in personal interviews that will be audio recorded.

RISKS AND DISCOMFORTS

The possible risks and/or discomforts associated with the procedures described in this study include: embarrassment, and emotional distress. If participants feel emotional distress after the interview that they may visit the University Counseling Services at Bayramian Hall Room 520, (818) 677-2366.

BENEFITS

Subject Benefits

You will not directly benefit from participation in this study.

Benefits to Others or Society

This study will be a possible benefit to society by providing information about concussions after a sports-related injury that would be helpful to students, families, coaches, educators, and service providers. This research will provide insight into the concussion experience mainly from the perspectives of the student-athletes themselves in order to gain a better understanding of the challenges and triumphs they face when returning to academic learning after concussive injury.

ALTERNATIVES TO PARTICIPATION

The only alternative to participation in this study is not to participate.

COMPENSATION, COSTS AND REIMBURSEMENT

Compensation for Participation

No compensation will be provided.

Costs

There is no cost to you for participation in this study.

Reimbursement

You will be reimbursed for any out of pocket expenses, such as parking or transportation fees.

WITHDRAWAL OR TERMINATION FROM THE STUDY AND CONSEQUENCES

You are free to withdraw from this study at any time. **If you decide to withdraw from this study you should notify the research team immediately.** The research team may also end your participation in this study if you do not follow instructions, miss scheduled visits, or if your safety and welfare are at risk.

CONFIDENTIALITY

Subject Identifiable Data

- All identifiable information that will be collected about you will be removed at the end of data collection.
- All identifiable information that will be collected about you will be removed and replaced with a pseudonym. A pseudonym is a different name or code.

Data Storage

- All research data will be stored electronically on a secure computer with password protection.
- The audio recordings will also be stored in a secure computer with password protection; then transcribed and kept for potential future studies.
- Any data that is printed will be kept in a secured file cabinet that is locked under key.

Data Access

The researcher and faculty advisor named on the first page of this form will have access to your study records. Any information derived from this research project that personally identifies you will not be voluntarily released or disclosed without your separate consent, except as specifically required by law. Publications and/or

presentations that result from this study will not include identifiable information about you.

Data Retention

The researchers intend to keep the research data for potential future research.

Mandated Reporting

Under California law, the researcher is required to report known or reasonably suspected incidents of abuse or neglect of a child, dependent adult or elder, including, but not limited to, physical, sexual, emotional, and financial abuse or neglect. If any researcher has or is given such information, he or she may be required to report it to the authorities.

IF YOU HAVE QUESTIONS

If you have any comments, concerns, or questions regarding the conduct of this research please contact the research team listed on the first page of this form.

If you are unable to reach a member of the research team listed on the first page of the form and have general questions, or you have concerns or complaints about the research study, research team, or questions about your rights as a research subject, please contact Research and Sponsored Projects, 18111 Nordhoff Street, California State University, Northridge, Northridge, CA 91330-8232, or phone 818-677-2901.

VOLUNTARY PARTICIPATION STATEMENT

You should not sign this form unless you have read it and been given a copy of it to keep. **Participation in this study is voluntary.** You may refuse to answer any question or discontinue your involvement at any time without penalty or loss of benefits to which you might otherwise be entitled. Your decision will not affect your future relationship with California State University, Northridge. Your signature below indicates that you have read the information in this consent form and have had a chance to ask any questions that you have about the study.

I agree to participate in the study.

I agree to be audio recorded

I do not wish to be audio recorded

Participant Signature

Date

Printed Name of Participant

Researcher Signature

Date

Printed Name of Researcher

Appendix F
Field Notes Template

(Skills, Challenges, Effort, Feedback, Setbacks)

Field notes by _____ Date written _____

Event, activity, class, situation observed _____

Date, time observed _____ Place _____

BACKGROUND:

SETTING:

PEOPLE:

TALK & ACTIVITY:

SUMMARY OF EVIDENCE ON RQ, SUB-Qs, or THEMES OF INTEREST:

AFTER THE EVENT (if relevant):

REFLECTION: