TRAINING COLLEGE STAFF TO RECOGNIZE AND RESPOND TO CONCUSSIONS

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TRAINING COLLEGE STAFF TO RECOGNIZE AND RESPOND TO CONCUSSIONS

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ABSTRACT

TRAINING COLLEGE STAFF TO RECOGNIZE AND RESPOND TO CONCUSSIONS

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This study utilized a quasi-experimental survey design to: a) examine the current level of knowledge of and training on concussion among college staff members, b) evaluate the efficacy of a one-hour training program on concussion recognition and management skills, and c) explore the impact of ongoing programming on college staff members’ ability to meet the needs of students who sustained a concussion. Participants (N = 263) received the training as well as ongoing resources provided by email during a four to nine month period following the training. Prior and attained knowledge were measured by pre- and post-training questionnaires. A follow-up questionnaire was administered four to nine months post-training to assess if and how participants utilized knowledge gained from training in working directly with students who had sustained a concussion. Results indicated a 7% percent increase in knowledge across participants from the pre- to post-
test questionnaire; however, results were not significant. Implications for college student personnel and college students are discussed.
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CHAPTER I
INTRODUCTION

Scholarly research and media attention are increasingly focusing on the long-term consequences of traumatic brain injury, including concussions, sustained by children and adolescents who play high school sports, professional athletes, and military personnel. Some literature exists regarding training programs for K-12 teachers and coaches, pro-sport coaches, and members of the military; however, little research has focused on concussion training programs geared toward college-age students who are not athletes (or soldiers) and the individuals entrusted with their care (Kennedy, Krause, & Turkstra, 2008). This is problematic because college students comprise one of the highest risk groups for concussions. Without the necessary support from college staff members trained in concussion recognition and response, college students who sustain concussions may experience a variety of adverse effects, particularly if they do not acknowledge the initial injury or respond appropriately to the concussion symptoms.

College students with concussions are often unaware or unwilling to admit that an injury has occurred and return to classes and sports prematurely. Upon returning to the cognitively demanding classroom environment, such students often experience academic and behavioral difficulties. They may be unable to connect these difficulties to their concussion and thus may not seek appropriate help.
The majority of students with concussions can receive sufficient help from the campus health center, assuming they obtain that help immediately following the injury. However, some students require more extensive help that is most often sought from campus disability services offices, which can provide appropriate accommodations to students who self-identify and request them. However, these services are often under-utilized because students with concussions feel they are unnecessary or because the “stigma” of needing help prevents them from asking for it (Todis & Glang, 2008, p. 259). Furthermore, faculty and staff in various roles across campus often lack knowledge in how to appropriately work with students who have sustained concussions (Glang, Dise-Lewis, & Tyler, 2006) and would therefore benefit from training designed to increase their ability to recognize and appropriately respond to concussions (Hux et al., 2010).

This study’s importance lies in its effort to bridge the gap between research and practice – training college staff members to understand and utilize the research documenting the significance of effective concussion management so they can improve their response to students who sustain concussions.
CHAPTER II
LITERATURE REVIEW

The first section of this literature review provides an overview of traumatic brain injury with a specific focus on concussions. Next, concussion symptoms and their effects are described. The next two sections review appropriate return to play guidelines and return to learning procedures. Finally, this literature review considers how college staff members, such as residence hall advisors and recreation facility staff, can help students with concussions receive appropriate care so they can achieve success in the classroom and beyond.

Definition, Causes, and Incidence of TBI

A traumatic brain injury (TBI) is caused by an external or internal force to the brain that changes the way it normally works (Centers for Disease Control and Prevention [CDC], 2013). Traumatic brain injuries take two forms: open head injuries are caused by objects that penetrate the scalp or skull, and closed head injuries result in damage to the brain tissue with no penetration of the scalp or skull (Aldrich & Obrzut, 2012). The primary causes of TBI are falls (35.2%), followed by motor vehicle accidents (17.3%), being hit by/against objects (16.5%), assaults (10%), and other unknown reasons (21%; CDC, 2013). Approximately 1.7 million people sustain a TBI every year (Faul, Xu, Wald, & Coronado, 2010). However, this number reflects only those injuries
that are reported; thus, a more accurate estimate is likely 3.8 million (Langlois, Rutland-
Brown, & Wald, 2006). Of the 1.7-3.8 million people who sustain a TBI every year,
approximately seventy-five percent (1.28-2.85 million) of these injuries can be classified
as a *concussion*, a mild form of TBI (CDC, 2013; Langlois, Rutland-Brown, & Thomas,
2006).

Determining the incidence of concussions is hampered by the various methods
used to diagnose and classify TBI. A medical professional can diagnose a TBI as mild,
omodate, or severe and the signs and symptoms of the injury can manifest differently
within and across these categories (Frost, Farrer, Primosch, & Hedges, 2013). A TBI is
typically categorized by considering three factors: 1) Glasgow Coma Scale (GCS), 2)
post-traumatic amnesia (PTA), and 3) loss of consciousness (LOC). GCS assesses an
individual’s eye opening response, body movement, and verbal responses using a scale
from 3 to 15 (Aldrich & Obrzut, 2012). A TBI is categorized as severe if the GCS is 8 or
less, moderate if the score is 9-12, and mild if the score is 13-15 (Aldrich & Obrzut,
2012). Length of PTA of less than one hour (Rao & Lyketsos, 2000) and LOC of less
than 30 minutes (Krach, Gormley Jr., & Ward, 2009) typically indicate a concussion. In
fact, the majority of concussions involve no LOC at all (McCrory et al., 2013).

Finally, and most importantly, individuals who seek medical attention for
concussions often look quite different from each other (Comper, Hutchison, Richards, &
Mainwaring, 2012) because symptoms may not manifest outwardly. Invisible symptoms
do not necessarily mean they are nonexistent. Further, some symptoms may not appear
immediately after the initial injury, but rather only after multiple injuries have been
sustained (Segalowitz & Lawson, 1995). Furthermore, “concussions are a problem of function, not structure,” (Davies, 2011, p. 10), meaning that neurochemical changes take place in the brain (Giza & Hovda, 2001) but there are usually no structural changes or damage (Barkhoudarian, Hovda, & Giza, 2011). Therefore, neuroimaging scans (i.e., CT or MRI) usually do not reveal abnormalities (Baker & Patel, 2000; Difiori & Giza, 2010; Pulsipher, Campbell, Thoma, & King, 2011), leading concussions to be viewed as a “silent epidemic” (Feinstein & Rapoport, 2000, p. 326). Because concussions are not evident in brain scans or medical tests, they are typically diagnosed based upon reports of signs and symptoms.

**Effects of Concussion**

According to Comper, Hutchison, Richards, and Mainwaring (2012), individuals experience symptoms of concussion on a continuum: small inconveniences to long-lasting impairments. The Centers for Disease Control and Prevention (2013) describe four categories of concussion symptoms: 1) thinking/remembering (i.e., difficulty thinking clearly, feeling slowed down, difficulty concentrating and remembering new information), 2) physical (i.e., headache, fuzzy or blurred vision, nausea or vomiting, dizziness, sensitivity to noise or light, balance problems, feeling tired/having no energy), 3) emotional/mood (i.e., irritability, sadness, an increased and oftentimes volatile range of emotions, nervousness, or anxiety), and 4) sleep (i.e., sleeping more than usual, sleeping less than usual, or trouble falling asleep).

Concussion signs and symptoms differ from person to person; therefore, individuals who sustain a concussion may not necessarily experience the entire range of
symptoms (Comper, Bisschop, Carnide, & Tricco, 2005). Because symptoms manifest differently, medical professionals and those entrusted with the care of a concussed individual must realize that no single treatment works equally well for all instances of concussion (Aldrich & Obrzut, 2012). Concussions have historically been called “bell ringers or dings,” suggesting that they are minor injuries and thus no cause for concern; however, this could not be farther from the truth (Lovell, Collins, Iverson, Johnston, & Bradley, 2004; McCrory et al., 2009). The belief that concussions are only mild injuries underestimates their potential to lead to more serious injuries, especially if they are left untreated.

**Post-concussion syndrome.** According to Collins, Lovell, Iverson, Ide, and Maroon (2006), most concussions (80-90%) heal on their own within one to three weeks. However, not every individual recovers that quickly (McAvoy, 2012; McClincy et al., 2006). According to Cassidy et al. (2004), there are likely hundreds of thousands of people every year who experience symptoms for longer periods of time. This highlights the “crux of the [concussion] paradox”—that an injury considered as mild can still result in lasting negative consequences (Comper, Bisschop, Carnide, & Tricco, 2005, p. 864; Lewandowski & Rieger, 2009). Individuals who experience symptoms post-injury are often diagnosed with post-concussion syndrome. Hall, Hall, and Chapman (2005) argue that post-concussion syndrome lacks an official definition because symptoms, which differ from person to person, tend to be subjective. Usually, people experience post-concussion symptoms for the first month after the injury, but some may experience symptoms for up to a year post-injury (Ryan & Warden, 2003). Wetjen, Pichelmann, and
Atkinson (2010) argue that this syndrome is rare but should still be taken seriously, as should second impact syndrome.

**Second-impact syndrome.** Second impact syndrome (SIS) occurs in some individuals who experience a second injury to the head – or an injury to the body that causes the brain to move within the skull – before the first injury has healed properly (Byard & Vink, 2009). Research suggests that the cumulative damage occurring from repeated head trauma can cause more severe consequences such as brain swelling, which causes the brain to burst within the confines of the skull, leading to herniation and sometimes even death (Byard & Vink, 2009; Faure, 2010; Webbe & Barth, 2003). Wetjen et al. (2010) assert that because this condition is rare, information regarding prevalence and incidence of SIS is lacking.

Risk of second injury is especially problematic in sports, in part due to underreporting and thus premature return to play. If injuries are not reported, an accurate estimate of incidence is impossible to obtain. Concussions often go unreported because the individual is unaware that an injury has occurred or the individual does not consider the injury serious enough to warrant medical attention (Buck, 2011; Dykeman, 2009; Lewandowski & Rieger, 2009; Segalowitz & Lawson, 1995). Furthermore, athletes may choose not to report their injury because they fear losing their position, athletic scholarship, or their reputation among their teammates; this fear – or perhaps pride – often leads to players returning to the game before they are physically ready to do so (McCrea et al., 2004). Comper et al. (2012) add that a premature return to play not only increases the athlete’s chances of sustaining a second injury, but may also prolong
recovery. According to Laker (2011), underreporting of concussions makes it nearly impossible to fully understand the seriousness of the condition.

**Return to Play**

In order to avoid sustaining a second injury, appropriate ‘return to play’ guidelines have been established highlighting the importance of physical rest following a concussion. These guidelines require athletes to progress through gradual 24-hour stages during which the amount of activity is increased as long as symptoms are not exacerbated (Sady, Vaughan, & Gioia, 2011). Thus, athletes should not return to play for at least a week after the injury. If symptoms are exacerbated, it is likely that the athlete’s brain is being “pushed beyond its tolerable limits” (Sady, Vaughan, & Gioia, 2011, p. 702). If symptoms flare, the athlete is required to return to the previous stage and corresponding level of physical activity for 24 hours and then attempt the next level again. In theory, this is an ideal timeframe for return to play. In practice, however, it is often difficult for athletes to adhere to these guidelines. Athletes and non-athletes alike do not relish the thought of interrupting their workout or training routines for a full week. Therefore, it is imperative that athletic trainers, coaches, and campus recreation employees ensure their athletes are following appropriate return to play guidelines.

As athletes make progress, a healthcare professional determines the appropriate time for the athlete to return to physical activity (Broglio et al., 2014; Sady, Vaughan, & Gioia, 2011) and athletic trainers can assume the day-to-day responsibilities of monitoring their athletes’ symptoms (McGrath, 2010). Trainers are also advised to conduct baseline testing before the season begins to determine athletes’ pre-injury level
of functioning (e.g., computerized neurocognitive assessments of processing speed, memory, learning, etc.). They then conduct post-injury testing to determine if the athlete has returned to pre-injury baseline levels of functioning. Afterwards, they are advised to consult with individuals with expertise in concussion management (Sady, Vaughan, & Gioia, 2011). Furthermore, athletic staff should discuss the athlete’s injury with academic personnel, who otherwise might be unaware that the injury took place (McGrath, 2010). Without this protocol in place, athletes often return to play prematurely (Faure, 2010). However, while concussion management procedures and return to play guidelines may be in place, research shows that many high schools and universities do not provide frequent concussion education to their athletes (Baugh, Kroshus, Daneshvar, Filali, Hiscox, & Glantz, 2014). Without that concussion education of how their injury may affect their daily activities, athletes and non-athletes alike often return to the academic demands of college prematurely.

**Return to Learning**

A recent study found that approximately 50% of individuals with concussions received information regarding appropriate return to play but seldom received information regarding appropriate return to learning (Arbogast et al., 2013). This discrepancy suggests that perhaps there is an underestimation of a concussion’s effect on one’s academic performance. McAvoy (2012) notes that there are currently no established procedures regarding ‘return to learning’ because the return “is an extremely individualized process” (p. 1). In regards to concussion recovery, simple physical rest is insufficient because the student also requires cognitive rest. This cognitive rest is
considered to be the most crucial aspect of concussion management (McCrory et al., 2009), yet it is often the most neglected. Cognitive rest requires the student to avoid activities that might trigger symptoms, including schoolwork and technology (e.g., television, cell phones, and laptops) and to gradually return to these activities as symptoms dissipate (Arbogast et al., 2013; McCrory, 2004). This break from activities is often challenging for all students, regardless of age, because they are required to avoid activities that usually comprise a significant part of their daily routines and social interactions (Sady, Vaughan, & Gioia, 2011). Students who are accustomed to being “on the go” and constantly connected to their social circles via electronics may find it difficult to reduce their involvement in extracurricular activities and constant communication with their peers. However, this break is beneficial for these students because the brain’s cells are significantly more vulnerable to further injury once the initial injury has occurred (Cantu, 2001) and thus require as much rest as possible.

Overall, students with concussions may participate in academic activities while symptomatic, but only if appropriate accommodations are in place (McAvoy, 2012). Once students with concussions are ready to re-enter the classroom, they may face academic challenges that are beyond the school staff’s scope of training (Chapman, 2005). Students with concussions often struggle to focus on academic assignments, to understand their new limitations post-injury, to control their mood and emotional reactions to situations, to recall past events and learned material, to refrain from verbal outbursts in class, and to engage in class activities and discussions (Jantz & Coulter, 2007; Ylvisaker et al., 2001). Furthermore, these students often choose to persevere in
their studies despite their symptoms because they believe the stress of make-up work or missing important classes will be worse than the symptoms themselves (Sady, Vaughan, & Gioia, 2011). Thus, it is important for educators and school personnel to monitor a student’s workload post-injury and to set boundaries if the student is unwilling to take breaks to rest his or her brain. Educators and other school personnel must also be aware that just because students with concussions may appear symptom free does not necessarily mean that they are fully recovered (Sady, Vaughan, & Gioia, 2011). Therefore, the return to learning, similarly to the return to play, should be gradual as well.

Academic difficulties arise for students with concussions regardless of age level. Recent literature has focused on some of the physical, academic, and emotional issues faced by (K-12) school-age children who have sustained concussions (Bakhos, Lockhart, Myers, & Linakis, 2010; Keenan & Bratton, 2006). These school-age children are often surrounded by adults who would most likely notice when an injury occurs, intervene quickly, and provide the necessary help (Sady, Vaughan, & Gioia, 2011). However, when those children graduate and move away to college, they are often left to “fend for themselves” (Harris & DePompei, 1997, p. 67) if an injury occurs. With that said, there is limited research on outcomes of college students—particularly non-athletes—who have sustained concussions.

**College Students**

College students (ages 18-25) find themselves in the middle of the “remarkable developmental paradox” that is emerging adulthood – facing both an increase in physical and cognitive maturation as well as an increased risk of injury and premature death.
(Pharo et al., 2011, p. 970). College students comprise one of the top three age groups with the highest risk of sustaining a concussion, along with preschoolers and the elderly (Krach, Gormley Jr., & Ward, 2009; Langlois, Rutland-Brown, & Thomas, 2006; Rao & Lyketsos, 2000). This may be due to the fact that college students frequently engage in risk-taking behaviors such as driving under the influence of alcohol, consuming illicit drugs, and engaging in unprotected sexual activity (Ravert, Schwartz, Zamboanga, Kim, Weisskirch, & Bersamin, 2009). These risky behaviors, when paired with an inclination toward sensation seeking and feelings of invulnerability, often increase the likelihood of injuries (Asemota, George, Bowman, Haider, & Schneider, 2013), including concussions.

Thankfully, many campus-wide initiatives have raised awareness of the dangers associated with driving while intoxicated, acquaintance assault, and other potential life-threatening situations. However, there have been few, if any, initiatives designed to raise awareness of the dangers of (ignoring) head injuries. This, coupled with the limited research regarding challenges faced by college students with concussions suggests that concussions are “inconsequential” for this population (Beers, Goldstein, & Katz, 1994, p. 315). However, recent media attention to concussions—particularly among war veterans and athletes—may be changing this misperception and leading educational institutions to re-evaluate their service delivery models.

**Support for college students with concussions.** If a college student sustained a moderate to severe head injury, he or she would obviously need to be taken to the hospital immediately to receive appropriate medical care. However, when a college student sustains a concussion, he or she would ideally be taken immediately to the
campus’s student health clinic for evaluation and discharged when appropriate. In the days and weeks following the injury, however, the concussed individual may need additional help in the form of academic accommodations or supports. Unfortunately, there are few educational programs designed specifically for college students with concussions and students with concussions often do not acknowledge or verbalize their academic difficulties and subsequent need for help (Kennedy, Krause, & Turkstra, 2008). Often, these silent academic struggles can have a long-term, negative impact on the student’s personal life (Bush et al., 2011).

If a student does seek help for academic needs resulting from a disability or medical condition, he or she typically visits the school’s disability services office, provides verification of the disability, and receives appropriate services. This process relies heavily on the student’s willingness to self-identify and, unfortunately, some students lack the courage or skills needed to self-advocate. Further, not every student with a concussion utilizes the available services because he or she may feel they are unnecessary or because the “stigma” prevents them from asking for help (Todis & Glang, 2008, p. 259). Many students view college as a time of transition toward greater independence and may thus view asking for help as a sign of weakness.

Kennedy, Krause, and Turkstra (2008) conducted a study that addressed 35 college students’ experiences of TBIs of all severity levels, and the services available to them. Their results showed that the number of students needing help did not equal the number of students receiving help from the school’s disability services office. When this discrepancy was investigated, the authors discovered that students with TBI simply did
not request the services, or they did not know of the office’s existence. When college students are unaware that services exist to help them, they are left to continue their education facing many academic challenges that could have been avoided. In Kennedy, Krause, and Turkstra (2008)’s study, 97% of the participants faced unexpected academic difficulties, such as: taking longer to complete assignments, experiencing test anxiety, feeling insurmountable stress while studying, struggling to pay attention in class and forgetting important information, procrastinating, struggling to understand assignments, and having difficulties with time-management.

Typically, campus disability services can accommodate certain academic challenges by encouraging professors to provide class notes, extend deadlines for assignments and tests, provide a distraction-free testing environment, and provide students the opportunity to record lectures (Hux et al., 2010; Kennedy, Krause, & Turkstra, 2008). Other services include help with planning, prioritizing, and organizing responsibilities, communication between students and professors to ensure appropriate accommodations are in place, tutoring, and mentoring (Todis & Glang, 2008).

However, not all campus disability services can provide adequate services for students with TBI, including concussions (Todis & Glang, 2008). According to Harris and DePompei’s (1997) survey of 74 colleges and universities in Ohio, many campus disability services offices do not consider TBI as an official disability category, nor are they equipped with qualified professionals who are trained to work specifically with students with TBI. Therefore, the resources and programs that campus disability services provide may not adequately meet the needs of students with TBI (Kennedy, Krause, &
Turkstra, 2008) and these students are left “underserved and under-identified for educational supports” (Glang et al., 2010, p. 426).

**College student personnel.** While students with concussions may not seek services from campus disability services or student health centers, they may talk with friends, roommates, sports teammates or coaches, or their residence hall advisors (RAs). Twale and Muse (1996) noted that RAs often have more encounters with students than other campus professionals do. This interaction allows RAs the opportunity to notice a change in a particular student (e.g., a student who has sustained a concussion) and intervene immediately to connect that student to the help needed. Taub and Servaty-Seib (2011) state that sufficient training can help RAs develop important skills to help students in distress and serve as valuable sources of support in the aftermath of an injury or other crisis. Students who have sustained a concussion may be more comfortable approaching a trusted RA who is trained to provide effective help instead of visiting a campus-based health center, which may not be open when the injury occurs (e.g., late at night or on weekends). Likewise, a friend or roommate may be more comfortable going to an RA if a peer confides in them about concussion symptoms.

Individuals who work in campus recreation facilities also have a unique opportunity to interact with students on a daily basis. Many college students participate in intramural sports, exercise classes, and weight-lifting routines and may experience a head injury. These students are supervised by campus recreation employees who may witness the injury and subsequently serve as “first responders”. While campus recreation employees typically receive emergency response training, including first-aid/CPR
training (Schneider, Stier Jr., Kampf, Haines, & Gaskins, 2008), many employees lack the ability to recognize the signs and symptoms of a concussion, particularly when they did not witness the injury’s occurrence.

**Purpose for the Present Study**

According to Glang, Dise-Lewis, and Tyler (2006), the vast majority (92%) of educational professionals not only lack knowledge of students with TBI but also appropriate training in meeting the needs of these students. According to Hux et al. (2010), information and training provided to educators, advisors, administration, and personnel working in college disability services offices would benefit students who have sustained a concussion. Reynolds (2013) argues that providing information and training can more effectively prepare college student personnel to meet the “ever-changing behavioral, psychological, and mental health needs of college students” and may even contribute to students’ academic success (p. 102).

There is a clear need for structured programs designed to facilitate concussion awareness and improve concussion management strategies in college settings (Sady, Vaughan, & Gioia, 2011). If these programs are in place, students with concussions may recover more quickly resulting in a reduced risk of post-injury consequences (Arbogast et al., 2013; Sady, Vaughan, & Gioia, 2011). Glang et al. (2012) argue that increased awareness and frequent monitoring of students with concussions is important because symptoms and needs change quickly. Once training on appropriate recognition and response of concussion occurs, the recipients of the training can create an action plan to implement what was learned (Sady, Vaughan, & Gioia, 2011). In addition to training,
Glang et al. (2010) suggest that follow-up with recipients of any training better enables them to retain what was learned and to implement it properly.

The purpose of the present study was to: 1) examine the current level of knowledge and training on concussion among college staff members, 2) evaluate the efficacy of a one-hour training program to increase college staff members’ concussion recognition and management skills, and 3) explore the effect of ongoing follow-up on college staff members’ ability to meet the needs of students who sustain concussions.
CHAPTER III

METHOD

Research Questions

This study posed three research questions: 1) what is the current level of knowledge and training related to concussion among college staff members? 2) what is the effect of a one-hour concussion training on college staff members’ knowledge about concussions? and 3) what is the impact of the training and follow-up resources after a four- to nine-month period?

It was hypothesized that college staff members would have very little knowledge of concussions before the training, but that their knowledge would increase after the training. These hypotheses stem from research indicating that K-12 school personnel not only lack knowledge but also experience in working with students with brain injury, including concussion (Davies, Trunk, & Kramer, 2013; Hooper, 2006; Walk, 2011). Additionally, it was hypothesized that college student personnel would be more likely to retain the knowledge gained from training and to utilize that knowledge in their work with students with concussion if they received follow-up resources pertaining to concussion recognition and response. This hypothesis was based on Glang et al.’s (2010)
research indicating that ongoing provision of resources is crucial to retention of knowledge gained through training.

**Research Design**

This study utilized a quasi-experimental survey design to examine the effect of training (explanatory variable) on participants’ ability to retain and utilize knowledge (outcome variable) gained through training in how to effectively recognize and respond to concussions in college students. This research design was chosen because random assignment was not possible as the participants were already employed in their respective departments. Further, the survey design allowed for more extensive data collection from a large group of people.

**Participants**

Participants were chosen through convenience sampling because the researcher attended the same university and therefore had access to the sample. The researcher contacted the directors of both the Residence Life and campus recreation (RecPlex) departments, both of whom agreed to conduct the concussion trainings during established employee training days. The five training sessions were provided to 263 college students from a local university who also work as college staff members in either: 1) residence life departments as resident assistants, resident directors, front-desk assistants, or a similar title or 2) the campus recreation department as intramural and/or club sports officers or supervisors.

Before each training session, the researcher contacted the director in charge of the particular employee training to determine approximately how many participants would be
in attendance at each session. Attendance for all five trainings was expected to be around 420 employees total. However, the researcher did not take attendance at the trainings so it is impossible to know the exact number of attendees. Further, since participation in the study was voluntary, only 263 participants completed the pre-training questionnaire and 241 participants completed the post-training questionnaire, yielding a response rate of 63% and 57%, respectively; these numbers are based on the approximate attendance numbers given by the department directors. At the end of the training, a sign-in sheet was given if attendees wished to receive follow-up emails containing additional information and resources. Of the 420 attendees, 188 attendees voluntarily provided their email addresses to receive the follow-up resources. It is possible that attendees who did not complete surveys indicated their consent to receive follow-up resources.

Demographic information reported on pre-training questionnaires included: gender, staff member position at the university, number of years as a staff member, and indication if the participant had any previous concussion training and/or previous experience managing a concussion in a college setting. Resident assistants supervise students in their assigned residence halls; there is at least one resident assistant per floor. The residence coordinators supervise the resident assistants; there are generally 1-4 residence coordinators per residence life facility. Area coordinators supervise all residence coordinators residence directors (graduate students who supervise a large area by themselves). On this particular university campus, many students live in surrounding neighborhoods, which are supervised by several resident assistants who are called fellows. Desk assistants and guest check-in attendants are assigned to particular residence
life facilities. The desk assistant position is 24/7 and the guest check-in attendant is directly supervised by the Housing and Residence Life office, not that facility’s area coordinator. Lastly, a RecPlex staff member may serve as an intramural or club sports officer or supervisor (see Table 1).

Table 1

Participant Demographic Data

<table>
<thead>
<tr>
<th>Demographic</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>123</td>
<td>47%</td>
</tr>
<tr>
<td>Female</td>
<td>140</td>
<td>53%</td>
</tr>
<tr>
<td><strong>Position</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resident Assistant</td>
<td>77</td>
<td>29%</td>
</tr>
<tr>
<td>Residence Coordinator</td>
<td>13</td>
<td>5%</td>
</tr>
<tr>
<td>Area Coordinator</td>
<td>1</td>
<td>.4%</td>
</tr>
<tr>
<td>Fellow</td>
<td>21</td>
<td>8%</td>
</tr>
<tr>
<td>Desk Assistant</td>
<td>56</td>
<td>21%</td>
</tr>
<tr>
<td>RecPlex Staff Member</td>
<td>47</td>
<td>18%</td>
</tr>
<tr>
<td>Guest Check-in Attendant</td>
<td>37</td>
<td>14%</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>.8%</td>
</tr>
<tr>
<td>No Response</td>
<td>9</td>
<td>3%</td>
</tr>
</tbody>
</table>

Number of Years as a Staff Member

21
### Prior Concussion Training

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>203</td>
<td>23%</td>
</tr>
</tbody>
</table>

### Previous Experience Managing Concussion in a College Setting

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>244</td>
<td>7%</td>
</tr>
</tbody>
</table>

### Materials

**Training materials.** A PowerPoint presentation was given to participants covering general information regarding traumatic brain injury. Specific content included: 1) concussion signs and symptoms, 2) post-concussion syndrome, 3) chronic traumatic encephalopathy, 4) guidelines for return to play and return to learning, and 5) accommodations for students (see Appendix B). The researcher then asked for volunteers to share their experiences in managing concussions. The presentation lasted for one hour and concluded with a time for participants to ask questions and share experiences.
**Questionnaires.** Participants were asked to voluntarily complete pre- and post-training questionnaires, as well as a follow-up questionnaire related to concussion knowledge and skills (see Appendix A). Each questionnaire took ten to fifteen minutes to complete. Core elements of the questionnaire and training presentation were pilot-tested through two previous research projects supervised by the primary researcher’s adviser. The multiple-choice questionnaires for this study were a modified version of two different questionnaires: 1) the *Concussions in the Classroom Questionnaire* (Cuff, 2012) and 2) the *Sports Concussion Parent Measures* (Glang, 2012). The questionnaires were modified to fit the needs of the current study by altering the wording to make it applicable to the university population (i.e., instead of reading ‘parent’, it read ‘staff member’; instead of reading ‘your child’, it read ‘student’); questions pertained to concussion signs and symptoms, assessment, and accommodations for students who have sustained a concussion, in addition to scenario-based questions involving concussions. The questionnaires contained true/false questions; yes/no questions, and multiple-choice questions and participants could receive a total of 41 points for marking correct answers and leaving incorrect answers unmarked.

**Handouts.** After the trainings, the researcher provided all attendees with a packet of resources to utilize as needed. The packet contained the researcher’s and her supervisor’s contact information, the CDC’s Signs and Symptoms Checklist (CDC, 2015); a signs and symptoms document, return to academics progression flowchart, and accommodations suggestions, all adapted from the Oregon Concussion and Management Program (OCAMP) and Slocum Sports Concussion program (OCAMP, 2011); a
“symptom wheel” (Colorado Department of Education, 2012); and a list of web-based resources containing links to legislative updates, research articles, school-wide training guides, and information for parents, school staff, and athletic staff (see Appendix C).

**Follow-up emails.** The researcher provided continued dissemination of information via email through Mailchimp, a free marketing email service that tracks HTML e-mail campaigns, so the researcher could track if e-mails were being opened (see Appendix D). E-mails included a fact, tip, and/or resource regarding concussion to supplement the information provided during the face-to-face training. E-mails were designed to provide crucial, eye-catching information at a glance. Further, if the staff member had a student who sustained a concussion, he or she was told during training to follow the typical response protocol of informing the university’s Department of Public Safety. If the student who sustained a concussion continued to experience persistent academic issues, the staff member was to direct them to services provided by the university’s disability services office.

**Procedures**

The researcher received approval from the Institutional Review Board (IRB) at the University of Dayton to complete this study prior to data collection. Participants were recruited through convenience sampling. The researcher contacted the directors of both the Residence Life and RecPlex departments, both of whom agreed to conduct the concussion trainings during established employee training days.

Five trainings were delivered over the course of eight months. The first training was one of several training sessions on a variety of topics being conducted at a previously
established employee training retreat for Residence Life employees; employees could choose which session to attend. The second, third, and fourth trainings were conducted during training workshops scheduled for RecPlex employees; attendance at these workshops was mandatory. The fifth training was also one of several training sessions being conducted at a planned employee training retreat for Residence Life employees; however, attendance at this retreat was mandatory. At the time of the training, all participants were informed of the purpose of the study and that their completion of the surveys indicated consent to participate in the study. Participants were given the option to provide an email address to receive follow-up emails containing tips, facts, and resources on concussions. Those who did not sign the sheet did not receive the emails.

The researcher administered the pre-training questionnaire in a large group setting prior to the training. Immediately following, the researcher conducted the one-hour training session, followed directly by administration of the post-training questionnaire. Questionnaire responses from all training sessions were compiled together; thus, it is not possible to calculate the number of questionnaires completed at each individual training session.

Handouts containing additional resources were passed out to participants at the end of the training. Participants who signed the sign-in sheet received a total of 3 follow-up emails via Mailchimp approximately every three to four weeks. Depending on when the training occurred, the researcher sent out the follow-up survey four to nine months later via Google Docs. This delayed follow-up provided extended time for the potential for participants to encounter and respond to students with concussions. This survey
solicited anecdotal feedback from participants regarding how they utilized their new knowledge in their work with students who had sustained a concussion. The researcher sent the follow-up survey a second time one month later in an effort to increase responses. All of the questionnaires and sign-in sheets were kept in a locked filing cabinet in the researcher’s office.
CHAPTER IV

RESULTS

Research Question 1

What is the current level of knowledge and training related to concussion among college staff members? To answer research question 1, participants’ pre-training questionnaire data were analyzed using the Statistical Package of the Social Sciences (SPSS). The researcher utilized descriptive statistics and a one-sample t-test to determine participants’ present level of knowledge and training on concussion.

A one-sample t-test was conducted to evaluate whether the mean pre-training scores were significantly different than 32, the accepted mean for scores in general. This number was derived by calculating a score that would indicate 80% mastery of knowledge on the pre-training questionnaire that contained 41 possible points. The sample mean of 28.89 was significantly different than 32, $t(262) = -12.468, p < .05$. The effect size $d$ of .769 indicates a large effect.

Research Question 2

What is the effect of a one-hour concussion training on college staff members’ knowledge about concussions? To answer research question 2, participants’ post-training questionnaire data were also analyzed using the Statistical Package of the Social Sciences (SPSS). The researcher utilized descriptive statistics and a one-sample t-test to evaluate
the effectiveness of the training on college staff members’ ability to recognize and respond to concussions.

A one-sample t-test was conducted to evaluate whether the mean post-training scores were significantly different than 32, the accepted mean for scores in general. This number was derived by calculating a score that would indicate 80% mastery of knowledge on the post-training questionnaire that contained 41 possible points. The sample mean of 32.42 was not significantly different than 32, \( t(240) = 1.707, p = .089 \). The effect size \( d \) of .109 indicates a small effect.

The post-training questionnaire contained an optional question soliciting qualitative feedback from the participants. In general, participants indicated that the training was beneficial. Samples of this feedback demonstrate that some people had a moderate level of knowledge beforehand (e.g., “Most info I already knew or had a basic idea of, presentation was useful in clearing up some things I wasn’t so sure of”) while others did not (e.g., “Didn’t know what a concussion was before, so thanks!”). Several people indicated that this training highlighted a rarely-discussed topic (e.g., “Loved the speaker! Very to the point and informative, brings awareness to an issue that is commonly overlooked and not given much attention to” and “This was very informative and it was great to learn since this isn’t a common training to have!” and “Good work! This is helpful and should be a part of RA training. It is important”).

**Research Question 3**

*What is the impact of the training and follow-up resources after a four- to nine-month period?* This research question was evaluated by examining responses to an open-ended question on the follow-up questionnaire, which asked participants if and how
they utilized the knowledge gained through training to accommodate any students who sustained a concussion. This information was gathered as a qualitative component of the study. Participants were asked how the training and further dissemination of information and resources influenced their practice with a student/resident who sustained a concussion. The survey was sent to all five training groups ($n = 184$) and has yielded a low response rate ($12\%$). However, of the 22 participants who completed the follow-up questionnaire, thirteen indicated the training was very beneficial and eight indicated that it was somewhat beneficial.

Participants ($n = 22$) who completed the follow-up survey managed twelve students with concussions, but only one participant elaborated on how that student was served and which accommodations they received. That particular participant indicated on the follow-up questionnaire that the student who sustained a concussion missed classes for one week and received deadline extensions on assignments.

The follow-up questionnaire also included an invitation to participants to meet with the researcher to discuss any students who had sustained a concussion in order to provide more details, but to date, no participants have elected to meet with the researcher. The researcher will be sending out the survey again once more to solicit more responses in one month.
CHAPTER V
DISCUSSION

Review of Purpose

The purpose of this study was to: 1) examine the current level of knowledge and training on concussion among college staff members, 2) to evaluate the efficacy of a one-hour training program to increase college staff members’ concussion recognition and management skills, and 3) explore the effect of ongoing follow-up on college staff members’ ability to meet the needs of their students who sustain a concussion.

Interpretation of Major Findings

Research question 1. Results from the pre-training questionnaires indicated that college staff members already possessed a moderate level of concussion knowledge. On the pre-training questionnaire, the Residence Life staff’s average percentage correct score was 69.53 and the RecPlex staff’s average percentage correct score was a 73.62, and although this difference was statistically significant, t(250) = -2.587, p = .010, the two groups were still within five points of each other and thus were grouped together. Therefore, the hypothesis that college staff members would have very little knowledge of concussions before the training cannot be accepted. It is possible that the pre-training questionnaire might have been too easy or participants may have gained the knowledge through previous training, personal experience managing someone who had a concussion, personal experience sustaining a concussion, or knew someone who had sustained a
concussion. In fact, out of 263 participants, 60 had prior training on concussion; 14 had been to a previous presentation or seminar on managing a concussion in the college setting; 19 had experience managing a concussion in a college setting; 17 had personally sustained a concussion; and 196 knew someone who had sustained a concussion. These participants may have applied their knowledge and experience on questionnaires.

**Research question 2.** Despite moderate pre-training knowledge, both groups of participants demonstrated an increase in knowledge as measured on the post-training questionnaire administered an hour after the pre-training questionnaire. Residence Life participants’ scores indicated a 7.6% increase and RecPlex participants’ scores indicated a 3.75% increase, but these increases were not statistically significant. These results support research by Davies and Ray (2014), which found that knowledge gained through training is retained immediately after the training. However, these scores may have been impacted by participants’ moderate level of knowledge to begin with as well as their familiarity with the questionnaire as the same questionnaire was used before and after training.

**Research question 3.** While it is important to assess immediate gains in knowledge after a training program, it is equally important to assess the application of that knowledge in current practice. The follow-up questionnaire solicited feedback on the effectiveness of the training, but it is difficult to draw conclusions because of the low response rate and limited information provided by participants on the questionnaire itself. The researcher invited participants to meet with her to discuss details of potential concussion cases, but so far, no one has chosen to do so. Although this study focused on participants’ ability to respond to students with concussions, it assumes that students
would self-identify and seek help, and research shows that college students often do not report their injury and subsequent need for help. If students are not requesting help or informing their residence hall advisors or supervisors in the RecPlex, those people who now have training in recognition and response cannot utilize that training.

**Limitations**

There are several limitations to this study and its design that impact the generalizability of the results. First, participants were sought through convenience sampling and there was no control group for comparison. Using systematic randomization and a control group would allow for comparison of concussion knowledge among training participants with those who did not receive the training. Second, while the researcher conducted the trainings at scheduled employee meetings for which attendance was mandatory (n ~ 420), the questionnaires were optional (n = 263 for pre-training questionnaires and 241 for post-training questionnaires). While attendance was not taken during the trainings, it is still evident that response rates were often low. Response rate could be improved by utilizing incentives for participation.

Third, the researcher conducted five trainings – two with Residence Life employees and three with RecPlex employees. Because the trainings were conducted at mandatory staff meetings, it is possible that participants attended more than one of the researcher’s trainings; thus, they may have been familiar with the questionnaire. Attendance was not taken so it is not possible to determine this. On the questionnaire, participants were asked if they had prior concussion training and many of the participants who did have prior training did not specify when or where that training occurred (e.g., with the researcher or a separate training altogether). For example, a Residence Life staff
member could have gone to one or both of the researcher’s trainings provided to the Residence Life staff and the RecPlex staff members could have gone to up to three of the researcher’s trainings provided to the RecPlex staff. Therefore, all questionnaires that indicated the participants had prior training were removed from the sample. That question on the form could have been clarified so that participants who attended one of the researcher’s training could be distinguished from participants who attended a separate training.

Fourth, the questionnaires were modified from two other previously used questionnaires; thus, the reliability and validity of the questionnaire used in this study was not well-established. Fifth, participants’ pre- and post-training questionnaires were not matched; thus, it is impossible to measure participants’ growth individually. Lastly, out of nine non-demographic items on the questionnaire, only one truly assessed application skills; the rest focused more on specific knowledge of concussion. This project’s purpose was to assess not only on participants’ knowledge of concussion, but also their ability to apply what they learned. However, this was not evident on the measures used in the study.

Implications for Future Research

Future research might replicate this design with the addition of a control group and more reliable measures of concussion knowledge. The questionnaires contained true/false questions; yes/no questions, and multiple-choice questions and participants could receive a total of 41 points for marking correct answers and leaving incorrect answers unmarked. Several of the multiple-choice questionnaires contained more than one right answer and participants only received full credit if they correctly identified all
of the correct answer options. For example, one question had eighteen correct answers (signs and symptoms of concussions) for which participants could receive up to 18 points. This question accounts for 44% of the possible points a participant could receive on the total questionnaire. Thus, the questionnaire relied heavily on participants’ knowledge of signs and symptoms. While it is important to determine participants’ knowledge of concussion facts, this study also sought to determine the participants’ application of knowledge, but that is not readily apparent in the questionnaire. In future studies the questionnaire could be modified to include more specific questions related to application of knowledge. This may include asking participants to determine the appropriate next steps when a student comes to them with a concussion, to identify key personnel that would need to be notified once a student sustains a concussion, and to indicate their understanding of proper return to play and academics timelines.

In addition to modifying the questionnaire to be more sensitive to knowledge of concussions and application of that knowledge, future researchers should develop more targeted efforts toward improving college staff members’ current practices to meet the needs of students with concussions on a college campus. In addition to adding incentives to avoid low response rates, it would be beneficial for resources to be provided directly to participants in face-to-face follow-up meetings as well as online. Many participants delete emails without reading them but may be more likely to keep resources given to them in person. Further, the researcher could collaborate with key personnel in Residence Life and campus recreation departments to identify participants who had opportunities to encounter and accommodate students with concussions. This would allow the researcher
to obtain more detailed descriptions of how the knowledge gained from training changed the participants’ daily practices.

**Conclusion**

While a one-shot training program may be beneficial, as demonstrated in this project, it is not sufficient to initiate lasting change. Rather, a cultural shift is likely necessary in individuals’ perceptions of concussions, especially on a college campus. This includes changing the social norms, attitudes, and behaviors related to under-reporting of concussions and increasing communication between students and the individuals with whom they have frequent direct contact. Training Residence Life employees and recreational center employees addresses a subset of key personnel on a college campus; employees in college disability services offices and even professors and teaching assistants would benefit from training as well, as they interact with students post-injury and may notice the signs and symptoms of concussion. Additional efforts are needed to create and implement a sustainable education model (see Figure 1) that accounts for individual college campuses’ existing strengths in order to facilitate substantive, lasting cultural change in a college campus community.
Figure 1. Sustainable Model of Concussion Training

The chart demonstrates the necessity of concussion training programs building on the campus’s existing strengths and support structures within the university in order to facilitate a cultural shift pertaining to concussion that will lead to new behaviors and attitudes in college students and college personnel.

Reprinted from Dr. Susan Davies’ NCAA grant proposal titled “Changing Attitudes about Concussions in Young and Emerging Adults”. Reprinted with permission.
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APPENDIX A

MEASURES

Pre-Training Questionnaire: By completing this questionnaire, you are consenting to participate in a research study regarding a training program for college staff members to facilitate the development of concussion recognition and response skills. This questionnaire will remain confidential and will be locked in a filing cabinet after it has been completed. Once data have been entered, the questionnaire will be destroyed. Please fill out the questionnaire to the best of your ability. You may skip questions if necessary. Thank you!

1. Please indicate your staff role:
   _____ Resident Assistant (RA)
   _____ Resident Director (RD)
   _____ Residence Coordinator (RC)
   _____ Area Coordinator (AC)
   _____ Community Coordinator (CC)
   _____ Fellow
   _____ Desk assistant
   _____ RecPlex staff member (please specify title):
   ____________________________________________________________
   _____ Other (please specify):
   ____________________________________________________________

2. This is my ________ year as a staff member at the University of Dayton:
   _____ 1st
   _____ 2nd
   _____ 3rd
   _____ 4th
   _____ Other (please specify): _______________________________________

3. Gender:
   _____ Male
   _____ Female
4. Have you had any prior concussion training?
   _____ Yes; please briefly explain when/where:
   __________________________________________________________
   __________________________________________________________
   _____ No

5. Have you ever been to a presentation or seminar on managing a concussion in the college setting?
   _____ Yes; please briefly explain when/where:
   __________________________________________________________
   __________________________________________________________
   _____ No

6. Do you have previous experience in managing a student’s concussion in the college setting?
   _____ Yes; how many?
   __________________________________________________________
   _____ No
   If yes, please briefly describe each situation(s) separately, including a description of the injury and accommodations that the student required and received:
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

7. Have you personally ever sustained a concussion?
   _____ Yes
   _____ No

8. Has anyone close to you ever sustained a concussion?
   _____ Yes
   _____ No

9. Which of the following are signs and symptoms of a concussion? Check all that apply. Please only mark the ones **about which you are certain**.
   _____ Headache or pressure in your head
   _____ Double or blurry vision
   _____ Nosebleed
   _____ Problems with balance
   _____ Dizziness
   _____ Sharp burning pain in neck/shoulders
Strange taste in mouth
Problems remembering things
Difficulty concentrating
A sluggish or foggy feeling
Toothache
Black eye
Sensitivity to light or noise
Nausea
Sleep problems
Chest pain
Moodiness
Shortness of breath

10. Regarding concussions, which statements are true? Check all that apply.
_____ A concussion is always revealed by a CT scan.
_____ A concussion is a “ding” to the head and requires no specialized care.
_____ A concussion is a bruise to the brain.
_____ A concussion should not affect a student’s academic performance.
_____ A concussion is an invisible injury.
_____ A concussion will usually heal on its own with rest.

11. A student you know has sustained a concussion. On day 2 after the concussion, he reports having a headache. On day 3, he still has a headache and looking at his class assignments or his laptop screen hurts his eyes. Which of the following statements is true? Check only one answer.
_____ These complaints are normal for a student with a concussion and he should be kept in his residence hall room until his symptoms completely resolve.
_____ These complaints are abnormal for a student with a concussion and he should be kept overnight in a medical facility.
_____ These complaints are normal for a student with a concussion and he should be monitored.
_____ These complaints are abnormal for a student with a concussion and it is likely that he is faking the symptoms.

12. What activities are likely to make concussion signs and symptoms worse? Check all that apply.
_____ Sleeping more than usual
_____ Sit-ups
_____ Stretching
_____ Chewing gum
_____ Surfing the internet
_____ Riding a bike
_____ Schoolwork
13. True/False: Two same-age female students experience a concussion from the same car accident where they were rear-ended at a stop sign. Both students are likely to complain of the same initial symptoms and are likely to recover at the same rates.
   ____ True
   ____ False
   ____ I don’t know

14. What are some common signs that class work is becoming more difficult for a student with a concussion? Check all that apply.
   ____ Dilated pupils
   ____ Increased forgetfulness
   ____ Decreased ability to cope with emotions
   ____ Impulsive behavior during class
   ____ Uncontrollable laughter

15. True/False: A concussion only occurs when a student loses consciousness.
   ____ True
   ____ False
   ____ I don’t know

16. True/False: You have to be hit on the head to have a concussion.
   ____ True
   ____ False
   ____ I don’t know

17. True/False: Class assignments that require a large amount of reading may make symptoms worse for a student with a concussion.
   ____ True
   ____ False
   ____ I don’t know

Post-Training Questionnaire: By completing this questionnaire, you are consenting to participate in a research study regarding a training program for college staff members to facilitate the development of concussion recognition and response skills. This questionnaire will remain confidential and will be locked in a filing cabinet after it has been completed. Once data have been entered, the questionnaire will be destroyed. Please fill out the questionnaire to the best of your ability. You may skip questions if necessary. Thank you!

1. Please indicate your staff role:
   ____ Resident Assistant (RA)
   ____ Resident Director (RD)
   ____ Residence Coordinator (RC)
______ Area Coordinator (AC)
______ Community Coordinator (CC)
______ Fellow
______ Desk assistant
______ RecPlex staff member (please specify title):
_______________________________________
______ Other (please specify):
________________________________________________________

2. This is my _______ year as a staff member at the University of Dayton:
   ______ 1st
   ______ 2nd
   ______ 3rd
   ______ 4th

3. Gender:
   ______ Male
   ______ Female

4. Have you had any prior concussion training?
   ______ Yes; please briefly explain when/where:
   ____________________________________________________________________
   ____________________________________________________________________
   ____________________________________________________________________
   ______ No

5. Have you ever been to a presentation or seminar on managing a concussion in the college setting?
   ______ Yes; please briefly explain when/where:
   ____________________________________________________________________
   ____________________________________________________________________
   ____________________________________________________________________
   ______ No

6. Have you personally ever sustained a concussion?
   ______ Yes
   ______ No

7. Has anyone close to you ever sustained a concussion?
   ______ Yes
   ______ No

8. Which of the following are signs and symptoms of a concussion? Check all that apply. Please only mark the ones about which you are certain.
______ Headache or pressure in your head
______ Double or blurry vision
______ Nosebleed
______ Problems with balance
______ Dizziness
______ Sharp burning pain in neck/shoulders
______ Strange taste in mouth
______ Problems remembering things
______ Difficulty concentrating
______ A sluggish or foggy feeling
______ Toothache
______ Black eye
______ Sensitivity to light or noise
______ Nausea
______ Sleep problems
______ Chest pain
______ Moodiness
______ Shortness of breath

9. Regarding concussions, which statements are true? Check all that apply.
   _____ A concussion is always revealed by a CT scan.
   _____ A concussion is a “ding” to the head and requires no specialized care.
   _____ A concussion is a bruise to the brain.
   _____ A concussion should not affect a student’s academic performance.
   _____ A concussion is an invisible injury.
   _____ A concussion will usually heal on its own with rest.

10. A student has sustained a concussion. On day 2 after the concussion, he reports having a headache. On day 3, he still has a headache and looking at his class assignments or his laptop screen hurts his eyes. Which of the following statements is true? Check only one answer.
    _____ These complaints are normal for a student with a concussion and he should be kept in his residence hall room until his symptoms completely resolve.
    _____ These complaints are abnormal for a student with a concussion and he should be kept overnight in a medical facility.
    _____ These complaints are normal for a student with a concussion and he should be monitored.
    _____ These complaints are abnormal for a student with a concussion and it is likely that he is faking the symptoms.

11. What activities are likely to make concussion signs and symptoms worse? Check all that apply.
12. True/False: Two same-age, same-gender students experience a concussion from the same car accident where they were rear-ended at a stop sign. Both students are likely to complain of the same initial symptoms and are likely to recover at the same rates.
   _____ True
   _____ False
   _____ I don’t know

13. What are some common signs that class work is becoming more difficult for a student with a concussion? Check all that apply.
   _____ Dilated pupils
   _____ Increased forgetfulness
   _____ Decreased ability to cope with emotions
   _____ Impulsive behavior during class
   _____ Uncontrollable laughter

14. True/False: A concussion only occurs when a student loses consciousness.
   _____ True
   _____ False
   _____ I don’t know

15. True/False: You have to be hit on the head to have a concussion.
   _____ True
   _____ False
   _____ I don’t know

16. True/False: Class assignments that require a large amount of reading may make symptoms worse for a student with a concussion.
   _____ True
   _____ False
   _____ I don’t know

17. Was the training program beneficial?
   _____ Yes
   _____ Somewhat
   _____ No
Follow-up Questionnaire: By completing this questionnaire, you are consenting to participate in a research study regarding a training program for college staff members to facilitate the development of concussion recognition and response skills. This questionnaire will remain confidential and will be locked in a filing cabinet after it has been completed. Once data have been entered, the questionnaire will be destroyed. Please fill out the questionnaire to the best of your ability. You may skip questions if necessary. Thank you!

1. Please indicate your staff role:
   _____ Resident Assistant (RA)
   _____ Resident Director (RD)
   _____ Residence Coordinator (RC)
   _____ Area Coordinator (AC)
   _____ Community Coordinator (CC)
   _____ Fellow
   _____ Desk assistant
   _____ RecPlex staff member (please specify title):
   __________________________________________
   _____ Other (please specify):
   __________________________________________

2. This is my ______ year as a staff member at the University of Dayton:
   _____ 1st
   _____ 2nd
   _____ 3rd
   _____ 4th
   _____ Other (please specify): __________________________

3. Gender:
   _____ Male
   _____ Female

4. Have you had any prior concussion training?
   _____ Yes; please briefly explain when/where:
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   _____ No

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5. Have you ever been to a presentation or seminar on managing a concussion in the college setting?
   _____ Yes; please briefly explain when/where:
   __________________________________________________________________________
   __________________________________________________________________________
   __________________________________________________________________________
   _____ No

6. Have you personally ever sustained a concussion?
   _____ Yes
   _____ No

7. Has anyone close to you ever sustained a concussion?
   _____ Yes
   _____ No

8. Which of the following are signs and symptoms of a concussion? Check all that apply. Please only mark the ones about which you are certain.
   _____ Headache or pressure in your head
   _____ Double or blurry vision
   _____ Nosebleed
   _____ Problems with balance
   _____ Dizziness
   _____ Sharp burning pain in neck/shoulders
   _____ Strange taste in mouth
   _____ Problems remembering things
   _____ Difficulty concentrating
   _____ A sluggish or foggy feeling
   _____ Toothache
   _____ Black eye
   _____ Sensitivity to light or noise
   _____ Nausea
   _____ Sleep problems
   _____ Chest pain
   _____ Moodiness
   _____ Shortness of breath

9. Regarding concussions, which statements are true? Check all that apply.
   _____ A concussion is always revealed by a CT scan.
   _____ A concussion is a “ding” to the head and requires no specialized care.
   _____ A concussion is a bruise to the brain.
   _____ A concussion should not affect a student’s academic performance.
   _____ A concussion is an invisible injury.
A concussion will usually heal on its own with rest.

10. A student has sustained a concussion. On day 2 after the concussion, he reports having a headache. On day 3, he still has a headache and looking at his class assignments or his laptop screen hurts his eyes. Which of the following statements is true? Check only one answer.

[ ] These complaints are normal for a student with a concussion and he should be kept in his residence hall room until his symptoms completely resolve.

[ ] These complaints are abnormal for a student with a concussion and he should be kept overnight in a medical facility.

[ ] These complaints are normal for a student with a concussion and he should be monitored.

[ ] These complaints are abnormal for a student with a concussion and it is likely that he is faking the symptoms.

11. What activities are likely to make concussion signs and symptoms worse? Check all that apply.

[ ] Sleeping more than usual

[ ] Sit-ups

[ ] Stretching

[ ] Chewing gum

[ ] Surfing the internet

[ ] Riding a bike

[ ] Schoolwork

12. True/False: Two same-age, same-gender students experience a concussion from the same car accident where they were rear-ended at a stop sign. Both students are likely to complain of the same initial symptoms and are likely to recover at the same rates.

[ ] True

[ ] False

[ ] I don’t know

13. What are some common signs that class work is becoming more difficult for a student with a concussion? Check all that apply.

[ ] Dilated pupils

[ ] Increased forgetfulness

[ ] Decreased ability to cope with emotions

[ ] Impulsive behavior during class

[ ] Uncontrollable laughter
14. True/False: A concussion only occurs when a student loses consciousness.
   ______ True
   ______ False
   ______ I don’t know

15. True/False: You have to be hit on the head to have a concussion.
   ______ True
   ______ False
   ______ I don’t know

16. True/False: Class assignments that require a large amount of reading may make symptoms worse for a student with a concussion.
   ______ True
   ______ False
   ______ I don’t know

17. Was the training program beneficial?
   ______ Yes
   ______ Somewhat
   ______ No

18. How many concussion cases have you managed as a staff member since the training? ________________

   Please briefly describe each situation(s), including a description of the injury and accommodations that the student required and received.
   ____________________________________________________
   ____________________________________________________
   ____________________________________________________
   ____________________________________________________
   ____________________________________________________
   ____________________________________________________
   ____________________________________________________

19. Any additional comments/questions:
   ____________________________________________________
   ____________________________________________________
   ____________________________________________________
APPENDIX B

TRAINING PROGRAM

Concussions at the College Level
Improving Recognition and Response
Lisa Lopez

Agenda
- Define concussion
- Prevalence
- Signs/Symptoms
- Accommodations
My Story

- 2009 - Fall
- 2011 - Summer camp accident

What’s your story?
Concussion Statements: T/F

- Concussions rarely occur in nonathletes.
- Most concussions involve a loss of consciousness.
- A symptomatic student may return to academic activities as long as the symptoms are “mild” and accommodations are made.
- A symptomatic student may return to physical activities as long as the symptoms are “mild” and accommodations are made.
- All concussions are the same.
- You have to be hit on the head to have a concussion.

Concussion

- Blow to the head
- Jolt
- “Ding”
- “Getting your bell rung”
- Mild traumatic brain injury (mTBI)
Definition of Concussion

- A concussion is a type of traumatic brain injury, or TBI, caused by a bump, blow, or jolt to the head that can change the way your brain normally works. Concussions can also occur from a fall or a blow to the body that causes the head and brain to move quickly back and forth.

Prevalence

- Approximately 1.7 million people sustain a TBI
- Approximately 75% of all TBI's are mild

Who’s at risk?

- Children under the age of five
- Individuals who are elderly
- Individuals who are 15-25 years old
- Why?

Causes

- Motor vehicle accidents (17.3%)
- Unknown (21%)
- Struck by/against objects (16.5%)
- Assault (10%)
- Falls (35.2%)

Signs

- Various manifestations of signs
  - Loss of consciousness?
- CT/MRI scans may look normal
- Concussions are often called a “silent epidemic”

Symptoms

- Thinking/remembering
  - Difficulty thinking clearly, feeling slowed down, difficulty concentrating, and difficulty learning or remembering new information, difficulty organizing tasks, decreased ability to concentrate, increased forgetfulness
- Physical
  - Headache, fuzzy or blurred vision, nausea or vomiting, dizziness, increased sensitivity to noise or light, balance problems, feeling tired/nearly no energy
- Emotional/mood
  - Irritability and moodiness; sadness; nervousness; or anxiety; decreased ability to cope with emotions; inappropriate/impulsive behaviors
- Sleep
  - Sleeping more than usual, sleeping less than usual, or trouble falling asleep

Centers for Disease Control and Prevention. “Concussion.”
http://www.cdc.gov/concussion/signs_symptoms.html
Symptoms, cont.

- The previous symptoms can be exacerbated by physical and cognitive activities.
- Cognitive rest is important!

Red Flags: Neurological Deterioration

- The student should be taken to the emergency department immediately if you notice any of the following:
  - One pupil larger than the other
  - Drowsiness (or cannot be awakened)
  - Headache that gets worse or doesn’t go away
  - Weakness, numbness, or decreased coordination
  - Repeated vomiting/nausea
Red Flags: Neurological Deterioration, cont.

- Slurred speech
- Convulsions/seizures
- Difficulty recognizing people or places
- Increased confusion, restlessness, or agitation
- Unusual behavior
- Loss of consciousness

Post-Concussion Syndrome

- Timeline of a concussion
- Post-concussion syndrome - three or more signs or symptoms persist after the concussion
Risk with Second Impact

- Second impact syndrome
- Cause
- Consequences
- Rare
- Controversial

Return to Learning

- When is it appropriate to return to the academic environment?
Return to Play

- When is it appropriate to return to athletic activities?
- Return to play should be progressive:
  - Step 1: No activity; complete rest
  - Step 2: Light, aerobic exercise
  - Step 3: Sport-specific activities
  - Step 4: Body drills without body contact
  - Step 5: Body drills with body contact
  - Step 6: Game play

Discerning the Problem

- Discuss: Why may college students under-report symptoms?
Discerning the Problem, cont.

- Unwilling to admit
- Unaware of the injury
- Missing practice/games
- Missing school
- Unaware of when/where to report the injury

Your Role

- You are more visible than other staff members
- You are more easily accessible
What to Do if You Witness the Injury

- If it happened during an athletic event...
- If you can, record information about the injury
- Notify parents/coaches/supervisor/teacher

What to Do After the Injury

- Ask the student specific questions, such as:
  - How is your _______? (insert symptom: headache, fatigue, etc.)
  - Are you having trouble focusing or concentrating?
  - Are lights and/or noises worsening your symptoms?
  - Are you having trouble remembering things?
  - Which class activities are the most difficult for you?
Possible Accommodations

- First and foremost...Rest and reduce.
- Help the student advocate for:
  - No physical activity until cleared by health professional (including sports and working out)
  - Reduced course load
  - Reduced use of computer and cell phone
  - Shortened school day
  - Extended deadlines for assignments, projects
  - Extended time on tests
  - Modifications of test format

Possible Accommodations, cont.

- Meeting with a tutor or attending study sessions
- Using handouts or notes prepared by the professor
- Using a planner and other organizational aids
- Establishing a relationship with a mentor
- Reduced amount of schoolwork
- Rest breaks
- Reduced exposure to excessive light, noise, and congested areas (hallways, residence life lobbies, cafeterias, etc.)
Questions or Comments?

References


References


References

Concussions at the College Level: Improving Recognition and Response – Handouts

Questions/comments can be directed to:
Lisa Lopez (lopez3@udayton.edu)
Dr. Susan Davies (sdaives1@udayton.edu)
# Concussion Signs and Symptoms Checklist

**Student's Name:**

**Student's Grade:**

**Date/Time of Injury:**

**Where and How Injury Occurred:**

**Description of Injury:**

**Physical Symptoms:**

- Headache or "pressure" in head
- Nausea or vomiting
- Balance problems or dizziness
- Fatigue or feeling tired
- Blurred or double vision
- Sensitivity to light
- Sensitivity to noise
- Numbness or tingling
- Soreness in "head area"

**Cognitive Symptoms:**

- Difficulty thinking clearly
- Difficulty concentrating
- Difficulty remembering
- Feeling "foggy" or "slowed down"
- Feeling "stuck" or "having a brain fog"

**Emotional Symptoms:**

- Sad
- More emotional than usual
- Nervous

---

**Observed Signs**

<table>
<thead>
<tr>
<th>0 MINUTES</th>
<th>15 MINUTES</th>
<th>30 MINUTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appears disoriented or confused about events</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appears irritated or upset</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can't recall events prior to injury, injury, or fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can't recall events after the injury, injury, or fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of consciousness (even briefly)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changes in speech or personality changes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forget class schedule or assignments</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Student to be observed:**

- A head injury,
- A blow to the head,
- A bump to the head,
- A jolt to the head

**Student should be observed by a health care professional:**

- A head injury,
- A blow to the head,
- A bump to the head,
- A jolt to the head

**Send a copy of this checklist to the student's health care professional:**

---

*For more information on Concussion, please visit www.maclaren.ca/Concussion or visit the website: www.maclaren.ca/Concussion.*
**Danger Signs:**

Be alert for symptoms that worsen over time. The student should be seen in an emergency department right away if s/he has:

- One pupil (the black part in the middle of the eye) larger than the other
- Drowsiness or cannot be awakened
- A headache that gets worse and does not go away
- Weakness, numbness, or decreased coordination
- Repeated vomiting or nausea
- Slurred speech
- Convulsions or seizures
- Difficulty recognizing people or places
- Increasing confusion, restlessness, or agitation
- Unusual behavior
- Loss of consciousness (even a brief loss of consciousness should be taken seriously)

**Additional Information About This Checklist:**

This checklist is also useful if a student appears to have sustained a head injury outside of school or on a previous school day. In such cases, be sure to ask the student about possible sleep symptoms. Drowsiness, sleeping more or less than usual, or difficulty falling asleep may indicate a concussion.

To maintain confidentiality and ensure privacy, this checklist is intended only for use by appropriate school professionals, health care professionals, and the student's parents or guardians.

For a free tear-off pad with additional copies of this form, or for more information on concussions, visit:

[www.cdc.gov/concussion](http://www.cdc.gov/concussion)

**Resolution of Injury:**

- [ ] Student returned to class
- [ ] Student sent home
- [ ] Student referred to health care professional with experience in evaluating for concussion

---

**Signature of school professional completing this form:**

________________________

**Title:**

________________________

**Comments:**

________________________
SIGNS (OBSERVED BY TEACHER/STAFF MEMBER):

- Student appears dazed or stunned
- Seems confused
- Forgets class schedule or assignments
- Moves clumsily (altered coordination)
- Exhibits balance problems
- Answers questions slowly
- Repeats questions
- Shows changes in mood, behavior or personality (irritability, sadness, more emotionality, nervousness)
- Forgets events prior to hit or fall
- Forgets events after the hit or fall
- Loses consciousness (even briefly)

Adapted from Oregon Concussion and Management Program (OCAMP) and Helmeted Sports Concussion program

SYMPTOMS (REPORTED BY STUDENT):

- Headache or pressure in head
- Foggy or hazy feeling
- Nausea or vomiting
- Double vision, blurry vision
- Sensitivity to light or noise
- Feeling sluggish, fatigued or groggy
- Problems concentrating
- Problems remembering
- Just not feeling right or feeling down
- Difficulty thinking clearly
- Balance problems or dizziness
- Numbness or tingling
- Sleep problems
Certain symptoms lead themselves to certain interventions. The Symptom Wheel helps educators align concerns with solutions.

**Symptom Wheel**

- Physical:
  - Headache
  - Fatigue
  - Difficulty focusing
  - Trouble reading
  - Trouble writing
  - Sore throat
  - Nausea
  - Vomiting
  - Difficulty sleeping

- Cognitive:
  - Trouble concentrating
  - Trouble remembering
  - Slow thinking
  - Frustration
  - Difficulty making decisions

- Emotional:
  - Mood swings
  - Anxious
  - Irritable
  - Depressed
  - Easily frustrated

- Maintenance:
  - Usually fatigued
  - Chronically tired
  - Leaps in mood
  - Sleep issues

- Strategies:
  - Workload reduction in the classroom/homework
  - Adjust "due" dates
  - Allow student to "make" classwork
  - Extend/postpone large tests/projects
  - In-class seating
  - Allow for "buddy notes"
  - Allow for note-taking
  - Allow for extra time
  - Review material for work not completed during recovery

[Source: http://www.idc.state.co.us/HealthAndWellness/BrainInjury.htm]
## RETURN TO ACADEMICS PROGRESSION

Progression is individual. All concussions are different. Students may start at any of these steps, depending on symptoms, and remain at the step as long as needed. Return to previous step if symptoms worsen. Be flexible.

<table>
<thead>
<tr>
<th>Steps</th>
<th>Progression</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1     | HOME—Total Rest | - Stay at home  
- No driving  
- No mental exertion—computer, testing, video games, homework |
| 2     | HOME—Light Mental Activity | - Stay at home  
- No driving  
- Up to 30 minutes mental exertion  
- No prolonged concentration |

Progress to Step 3 when student handles up to 30 minutes of sustained mental exertion without worsening of symptoms.

| 3     | SCHOOL—Part Time  
Minimum accommodations  
Shortened day/schedule  
Built-in breaks | - Provide quiet place for scheduled mental rest  
- Lunch in quiet environment  
- Fewer significant classroom assignments  
- Modified testing and time limits  
- Provide extra time and modified assignments |

Progress to Step 4 when student handles 30–40 minutes of sustained mental exertion without worsening of symptoms.

| 4     | SCHOOL—Part Time  
Moderate accommodations  
Shortened day/schedule | - No standardized testing  
- Modified classroom testing  
- Moderate decrease of extra time, help and modification of assignments |

Progress to Step 5 when student handles 60 minutes of mental exertion without worsening of symptoms.

| 5     | SCHOOL—Full Time  
Minimal accommodations | - No standardized testing; routine tests are OK  
- Continued decrease of extra time, help and modification of assignments  
- May require more support in academically challenging subjects |

Progress to Step 6 when student handles all class periods in succession without worsening of symptoms and receives medical clearance for full return to academics and athletics.

| 6     | SCHOOL—Full Time  
Full academics  
No accommodations | - Attends all classes  
- Full homework and testing |

When symptoms continue beyond 3–4 weeks, prolonged in-school supports are required. Request a 504 meeting to plan and coordinate student supports.

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Page 3 of 5
**ACCOMMODATIONS SUGGESTIONS**

As a professional educator, there is much you can do to help your students recover from concussions and help their brains heal. Symptoms of concussion may impede information processing speed and the ability to handle a full load of work. You can provide accommodations for these temporary learning difficulties.

<table>
<thead>
<tr>
<th>The mental effort to prepare for and then take tests may worsen symptoms.</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Postpone or stagger tests. Avoid double-up on tests. Provide shortened tests or extend time to take tests.</td>
</tr>
<tr>
<td>- Modify assignments and homework. Limit the number of problems, questions or pages to read. Emotional pressure can increase symptoms.</td>
</tr>
<tr>
<td>- Concluded students will often exhibit temporary learning difficulties similar to those associated with ADHD (see below).</td>
</tr>
<tr>
<td>- Modify assignments—select the most important concepts. Deliver instructions in smaller “chunks.”</td>
</tr>
<tr>
<td>- Excuse from (or un-weight) specific tests and assignments. Remove or adjust large projects during the first critical three weeks.</td>
</tr>
<tr>
<td>- Allow more time to complete tests.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Some students with symptoms of concussion exhibit the same characteristics as seen in ADHD.</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Use a reader or recorded books for assignments and testing. A buddy might be used to read assignments aloud.</td>
</tr>
<tr>
<td>- Provide written instructions for homework.</td>
</tr>
<tr>
<td>- Provide pre-printed class notes or allow other students to share their notes.</td>
</tr>
<tr>
<td>- Allow the use of a tape recorder.</td>
</tr>
<tr>
<td>- Use a smaller, quieter exam room or use a quiet part of the classroom.</td>
</tr>
<tr>
<td>- Move the student to a seat in front of the class. Seat away from windows, doors, other distractions.</td>
</tr>
<tr>
<td>- Allow for a temporary tutor to assist in organizing and planning work. Allow another student to help secure school resources.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical exertion may increase symptoms.</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Excuse from sports, PE, weightlifting, cheer, band.</td>
</tr>
<tr>
<td>- Reduce backpack weight by keeping textbooks in the classroom.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Students report that one of the scariest things they experience after concussion is changes in mood.</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Allow time to visit the school counselor, nurse or psychologist.</td>
</tr>
<tr>
<td>- Assign a buddy to help talk to the student, listen and calm the student when upset.</td>
</tr>
<tr>
<td>- Make arrangements to provide the student with a quiet supervised place to go to regain composure.</td>
</tr>
<tr>
<td>- Let students know that this is one of the symptoms of concussion.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Some students are sensitive to light and/or noise after concussion.</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Permit sunglasses or caps with visors indoors.</td>
</tr>
<tr>
<td>- Permit ear protectors (not music).</td>
</tr>
<tr>
<td>- Provide a quiet alternative place to eat. Cafeterias are loud and bright.</td>
</tr>
<tr>
<td>- Allow extra half passing time or allow student to leave early to the next class to avoid hallway chaos.</td>
</tr>
<tr>
<td>- Turn down lights in one area of the classroom.</td>
</tr>
</tbody>
</table>

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**ACCOMMODATIONS PLAN FROM HEALTHCARE PROVIDER (SAMPLE)**

Adapted from:
Oregon Concussion and Management Program (OCAMP) and
Oregon Sports Concussion Program

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CONCUSSION RESOURCES


2. Information on concussion signs, symptoms, management, evaluation, and education; information for parents, schools, and athletic staff: http://www.endym ENTITYhospitalforkids.com/sports-medicine/concussion-management/nasap-guidelines.htm


5. Website containing links to research articles and current research projects regarding concussion education: http://nHB.org


7. This website includes resources for individuals with TBI, families and friends of individuals with TBI, and for professionals; resources based on location; multimedia and personal stories; and research updates: http://www.brainline.org


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APPENDIX D

FOLLOW-UP EMAILS

Email 1

I just want to thank you all again for attending the concussion training presentation back in ________! I hope it was beneficial to you all! As promised, I'll be following up with you this semester periodically to provide you with additional resources, information, and tools that you can use if you encounter a student with a concussion in your residence life facility.

Do you have a smartphone? If so, check out the free PAR app "Concussion Recognition and Response: Coach and Parent Version" by Gerard A. Gioia, PhD and Jason Mihalik, PhD. This app features information on concussion recognition and response, home symptom monitoring, return-to-play guidelines, as well as a section for FAQ to help you better understand the different facets of concussion. Very handy for when you're in a crisis situation with the student and may not have all those handouts easily accessible!

Enjoy your day! Be safe!!

Email 2

Hi everyone! Hope you're having a great week! Here's another follow-up tip. The following link (http://www.brainline.org/landing_pages/categories/concussion.html) provides a general overview reminder of concussion signs and symptoms. The website as a whole contains many resources for you to explore, but two of my favorites are:

http://www.brainline.org/content/2013/08/concussion-frequently-asked-questions-from-parents.html

http://www.brainline.org/content/2012/06/what-should-you-do-if-you-think-you-have-had-a-concussion.html

When you get a chance, feel free to check it all out!

Enjoy your holiday weekend! Be safe!!
Email 3 – Residence Life Version
Hi everyone! Hope you're having a great week! I'm providing links to some short videos about the difficulty in diagnosing a mild traumatic brain injury/concussion and difficulties that college students face in particular. The videos talk about how important it is to advocate for students and make sure they're getting the accommodations they need to be successful in college. There's also many more videos on the website if you feel like exploring different facets of TBI!

http://bcove.me/nkbow2y6
http://www.brainline.org/content/multimedia.php?id=8719
http://www.brainline.org/content/multimedia.php?id=8725

When you get a chance, feel free to check them out and pass them along!

Enjoy the rest of your week!

Lisa

Email 3 – Campus Recreation Department Version
Hi everyone! Hope you're having a great week and enjoying this warmer weather! Here's another follow-up resource for you all. I'm providing a link to the Sport Concussion Assessment Tool. This tool provides a way for you to evaluate and document symptoms, cognitive/physical functioning (including balance, coordination, and a sideline assessment), a list of signs to look for, and a summary of the return to play guidelines. It's free/printable so feel free to pass it along to others!!

http://www.cces.ca/files/pdfs/SCAT2%5B1%5D.pdf

Enjoy the rest of your week!

Lisa