SCHOOL-BASED TRAINING AND CONSULTATION TO IMPROVE CONCUSSION AWARENESS

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By
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Dayton, Ohio
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SCHOOL-BASED TRAINING AND CONSULTATION TO IMPROVE
CONCUSSION AWARENESS

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ABSTRACT

SCHOOL-BASED TRAINING AND CONSULTATION TO IMPROVE CONCUSSION AWARENESS

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This study examined the efficacy of school-based training paired with ongoing consultation and continued dissemination of information to improve educator’s knowledge and response related to concussions, through a quasi-experimental design. The experimental group (N = 14) received ongoing consultation and continued dissemination of concussion resources via email for four months following the training; the control group (N = 6) received the training but no further consultation or dissemination of information. It was hypothesized that the experimental group would be more likely to retain the knowledge and improve services with students who sustained concussions. This was measured through a Pre-Training Questionnaire, Post-Training Questionnaire, and four month Follow-Up Questionnaire. While there was no statistically significant difference between the two groups; there was a main effect for training with both groups demonstrating an increase in concussion knowledge, recognition, and response across three time periods. Furthermore, 15 students were provided accommodations after sustaining a concussion by participants in the experimental group, whereas one student was provided accommodations after sustaining
a concussion in the control group. In addition, the school psychologist in the experimental group consulted on 17 concussion cases, whereas the school psychologist in the control group consulted on zero concussion cases.
I dedicate this thesis to all of the students who sustained concussions, school personnel, and families I consulted with about concussions in my internship school district.
ACKNOWLEDGMENTS

With my deepest gratitude and appreciation, I would like to thank the chair of my committee, Dr. Susan Davies, for her commitment, guidance, and encouragement throughout the research process; in addition, to her belief in my ability to be successful throughout graduate school and beyond. I would also like to thank Dr. Elana Bernstein and Dr. Joni Baldwin for taking the time to be on my thesis committee and guide me during this process. Furthermore, I want to thank all the school personnel (teachers, counselors, administrators, secretaries, and paraprofessionals) that participated in my research study. Lastly, I would like thank my wonderful husband Tim, for his love, support, encouragement, and belief in me to achieve my goals, as well as my family for their continual love and support.
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CHAPTER I
INTRODUCTION

Concussions are frequently highlighted in major news stories recently due to adverse outcomes experienced by professional athletes and combat veterans. However, a significant number of concussions are sustained by youth engaged in everyday play activities. Thus, it is essential for school personnel to recognize signs and symptoms, understand risk factors, and apply an appropriate response protocol.

A concussion is caused by a direct blow or jolt to the head, face, or neck, or a blow to the body that causes the head and brain to shift rapidly back and forth; it results in a short-term impairment of neurological function (CDC, 2011; McCroy et al., 2008). Symptoms can last days, weeks, or months; therefore, students who have sustained a concussion may need specialized services post-concussion. Cognitive, emotional, behavioral, and academic deficits can all result from a concussion (CDC, 2011) and may require specialized assessment, accommodations, modifications, and interventions in the education environment (McGrath, 2010). In order for school personnel to learn about concussions, a school-based training could be beneficial (Somers & Sikorova, 2002). However, following the training, continued follow-up, consultation, and dissemination of information are recommended in order for school personnel to retain the knowledge (Glang, Bonnie, Brown, & Vaccaro, 2010).

Educators may face challenges when students return to school after sustaining a
concussion. By evaluating the current training of school personnel regarding concussions, areas of improvement may be determined. Evaluations completed at a school-based training can help determine the level of knowledge and skills school personnel have prior and following a school-based training on concussions.

The purpose of this proposed study was to: 1) address school personnel’s knowledge and training related to concussions, 2) examine the efficacy of a school-based training on concussions, and 3) examine the impact of continued consultation and further dissemination of information on concussions after the initial school-based training.
CHAPTER II
LITERATURE REVIEW

The first section of this literature review summarizes the prevalence, causes, signs and symptoms of concussion; assessments for and impact of concussion; and appropriate accommodations for school-aged students who have sustained a concussion. The next section of the literature review focuses on the knowledge, skills, and training school personnel have in the area of concussions. Additionally, literature on the characteristics of quality professional development programs, follow-up, and consultation are covered, as this can help determine the effectiveness of a school-based training on concussions for school personnel.

**Concussions**

Traumatic brain injuries are typically evaluated on a continuum of severity, ranging from mild to severe. According to the CDC (2011), the Glasgow Coma Scale (GCS) is the most commonly used scoring system for classifying traumatic brain injury severity. It grades a person's level of consciousness on a scale of 3–15 based on verbal, motor, and eye-opening reactions to stimuli, with 3 being the most severe and 15 being the most mild (Teasdale & Jennett, 1974). Mild traumatic brain injuries account for 80-90% of brain injuries (Cassidy et al., 2004; Lewandowski & Reiger, 2009). A concussion is considered a mild traumatic brain injury: “it is a form of brain injury that disrupts brain function and produces subtle effects for days, weeks, or months”
(Lewandowski & Rieger, 2009, p. 102). Concussions are more likely to be sustained by young children and adolescents than adults (Buzzini & Guskiewicz, 2006; CDC, 2010; Langlois, Rutland-Brown, & Wald, 2006). This may be due to young children’s lack of agility and adolescents’ thrill seeking and risk taking behavior on the playground, in sports, and in vehicles.

**Prevalence.** According to the Center of Disease Control and Prevention (CDC, 2010), approximately 1.7 million people sustain a traumatic brain injury every year; out of the 1.7 million, 52,000 people die, 275,000 people are hospitalized, and 1.365 million (about 80%) people are cared for and released from the emergency room. Approximately 75% of those traumatic brain injuries are concussions. The number of sports and recreational concussions is estimated to be as high as 3.8 million a year (Oregon Center of Applied Science, 2011). Furthermore, according to the CDC (2010), children 0 to 4-years-old, 15 to 19-years-old, and adult’s 65-years-old and older are the highest risk populations to sustain a traumatic brain injury. Nearly half a million children 0 to 14-years-old are admitted to the emergency room each year for sustaining a traumatic brain injury. In all age groups, males are more likely to sustain a traumatic brain injury than females; furthermore, males 0 to 4-years-old are most likely to be admitted to the emergency room and die from sustaining a traumatic brain injury (CDC, 2010).

**Causes.** There are numerous causes of concussions among students, such as falling down or getting struck by an object (Kozlowski, Leddy, Tomita, Bergen, & Willer, 2007). Furthermore, many concussions are sports related: heading the ball in soccer, getting thrown to the mat in wrestling, being tackled in football or falling during a stunt while cheerleading (Davies, 2011; Kozlowski et al., 2007). Students also sustain
concussions from non-motored sports such as scooters, skating (Kozlowski et al., 2007), and mountain biking (Aleman & Meyers, 2010), in addition to motored sports such as racing motorcycles or cars, as well as motor vehicle collisions, fights, abuse, and recreational play on the playground (Kozlowski et al., 2007).

**Signs and symptoms of concussion.** Mild traumatic brain injuries such as concussions have been coined the “silent epidemic” because the symptoms can be subtle and covert (Boll, 1983; Langlois, Rutland-Brown, & Thomas, 2006). There are four main categories of concussion symptoms according to the CDC (2011): physical, cognitive, emotional, and sleep. Physical signs and symptoms include: headache, nausea, vomiting, balance problems, visual problems, fatigue, sensitivity to light, sensitivity to noise, dazed, and stunned. Cognitive signs and symptoms include: feeling mentally “foggy”, feeling slowed down, difficulties concentrating, difficulties remembering, forgetting recently learned information, confusion about recent events, responding slowly, and repeating questions. Emotional signs and symptoms include: irritability, sadness, increased emotionality, and anxiety. Sleep signs and symptoms include: drowsiness and changes in sleep patterns such as difficulty falling asleep, increased sleep, and/or decreased sleep. Children who sustain a concussion will typically display immediate signs and symptoms, and some children may exhibit “post-concussive symptoms,” which are neurobehavioral changes that persist after a concussion (Mittenberg, Wittner, & Miller, 1997).

Post-concussion syndrome is a set of symptoms that continue after a concussion has been sustained (Lewandowski & Rieger, 2009). According to The World Health Organization (1992) three or more signs or symptoms of a concussion must persist after
injury to be considered post-concussion syndrome. Thus, a small percentage (<5%) of people who have sustained a concussion will experience post-concussion syndrome (Iverson, 2005). Typically, most concussion symptoms dissipate within one to two weeks of sustaining a concussion (Lewandowski & Rieger, 2009). However, if a student has post-concussive symptoms, the symptoms are likely to affect the student’s academic work, classroom participation, behavior, relationships, and/or extracurricular activities (McGrath, 2010). If a student sustains another concussion prior to recovering (termed “Second Impact Syndrome”) from the first concussion, it can lead to diffused brain swelling, permanent brain damage, or death (Cobb & Battin, 2004). Therefore, assessment and identification of students who have sustained a concussion is imperative for their life and school success.

**Assessment**

Teachers need to be aware of the signs and symptoms of concussions in students. In order to screen a student who may have sustained a concussion, free signs and symptoms checklists are available to the public from the CDC’s website ([http://www.cdc.gov/concussion/pdf/TBI_schools_checklist_508-a.pdf](http://www.cdc.gov/concussion/pdf/TBI_schools_checklist_508-a.pdf)). This checklist is part of the “Heads Up to School: Know Your ABCs.” The ABC’s stand for A: assess the situation, B: be alert for signs and symptoms, and C: contact a health care professional. If a teacher observes a student with one or more sign or symptom on the checklist after sustaining a bump, blow, or jolt to the head, and/or body the student should be referred to a health care professional for a concussion evaluation (CDC, 2011).

Medical doctors, psychologists, athletic trainers, and other licensed healthcare professionals can use ImPACT (Immediate Post-Concussion Assessment and Cognitive
Testing) for concussion evaluations. ImPACT is a valid, reliable, and safe computerized neurological assessment tool that can assist in determining if a student athlete should return to play after sustaining a concussion. ImPACT measures players’ symptoms, verbal and visual memory, processing speed and reaction time, assists clinicians and athletic trainers in making difficult return-to-play decisions. It provides reliable baseline test information, and produces a comprehensive report of test results. Furthermore, results can be e-mailed or faxed for fast consultation by a neuropsychologist and it automatically stores data from repeat testing. Testing is administered online for individuals or groups, and the program is compatible with PC and MAC. This program assesses several aspects of cognitive function in student-athletes, which include: attention span, working memory, sustained and selective attention time, response variability, non-verbal problem solving, and reaction time (ImPACT, 2012).

Impact of Concussions on Students in School

If a student has sustained a concussion, the demands of completing schoolwork may exacerbate the symptoms and adversely impact student’s academic performance (Halstead, Walter, the Council of Sports Medicine and Fitness, 2010; Lewandowski & Rieger, 2009). Therefore, it is imperative that school personnel, especially teachers, are aware of concussion signs and symptoms. Teachers may be the first to notice a change in a student’s cognition, behavior, and/or emotions, because teachers typically see students daily for several hours a day.

School re-entry. Concussions may take place on the playground, the field/court, at the park, or in a car; however, school personnel need to be equipped with knowledge and skills to better understand concussions when students return to school and the
classroom. Due to the symptoms a student may display following a concussion, it may be necessary for the student to re-enter school for a shortened day (Lewandowski & Rieger, 2009). This will allow the student to obtain the physical and the cognitive rest he/she needs (Halstead, Walter, & The Council of Sports Medicine and Fitness, 2010). Furthermore, students may need behavioral, mental health, and/or academic support, in addition to specific accommodations, to help them be successful in school after sustaining a concussion. Therefore, coordinating a school team that consists of the parent, school psychologist, teacher, school nurse, and administrator to assist these students when they return to school is essential for consistency and effective communication, ensuring that the student receives the support he/she needs to be successful in the school environment.

**Accommodations.** Once signs and symptoms are noticed and the teacher(s) is aware that the student has sustained a concussion, it is important that the teacher(s) makes accommodations if needed, to support the student’s academic success. According to McGrath (2010), there are several realistic accommodations that can be implemented for students recovering from a concussion, including:

1) **Excused absence from classes:** these students need rest; therefore, having them attend school for a partial day will give them the opportunity to receive adequate rest.

2) **Rest periods during the school day:** students that attend school all day may need the opportunity to rest in the nurses' office, instead of leaving school.
3) Extension of assignment deadlines: if the student is having difficulty processing and completing the full work load, allowing the student extra time to complete the assignment may be beneficial.

4) Postpone or stagger tests: preparing and/or taking a test can exacerbate symptoms and place a student at an unfair disadvantage, thus it is recommended that tests be postponed.

5) Excusals from specific tests and assignments: this would allow the student to be excused from all test and assignments while the student is displaying symptoms.

6) Extended testing time: this may be beneficial for students who are symptomatic but can still handle taking the test; because information slowed processing speed is a common symptom following a concussion.

7) Accommodations for oversensitivity to light, noise, or both: turning down lights in a portion of a classroom or allowing the student to go to a less stimulating environment, can be beneficial because many times students with concussions are sensitive to light, noise, or both.

8) Excusals from team sport practice and gym activities: students should be excused from physical education and school sports to ensure they don’t receive any further blows or jolts to the head, neck, or face. Furthermore, this will give them time to rest and/or catch up on school work.

9) Avoidance of physical exertion: students should utilize the elevator, carry little weight in their backpack, and sit out during physical education class (as discussed above).
10) A reader for assignments and tests: many times students that have sustained a concussion may experience exacerbated symptoms when visually scanning while reading. Thus, a reader may benefit these students on homework and test.

11) Use of note taker or scribe: a note taker may be beneficial because students might have difficulty listening and taking notes. This gives them the opportunity to focus on the lecture and class content.

12) Use of a smaller, quieter examination room to reduce stimulation and distraction: characteristics of ADHD can be displayed in students recovering from a concussion, therefore smaller and quieter rooms that have fewer distractions are helpful for these students.

13) Preferential classroom seating to lessen distraction: sitting in the front of the classroom can help students focus and concentrate, therefore a teacher may need to change the seating arrangement.

14) Temporary support from a tutor to assist with organizing and prioritizing homework assignments: a concussion can affect executive function skills, therefore assistance with organization and prioritizing homework would benefit these students.

In order for students to benefit from the accommodations, academic support is needed. For instance, the parent(s), teacher(s), school nurse, and school psychologist can be very influential in helping students be successful after sustaining a concussion by providing cognitive and physical rest in addition to accommodations (Davies, 2011; Lewandowski & Rieger, 2009; McGrath, 2010).
Additionally, though it is rare, the school team may be integral in implementing a 504 plan for a student who demonstrates post-concussive symptoms. Section 504 of the Rehabilitation Act of 1973 protects qualified individuals with disabilities. Students who have sustained a concussion and exhibit post-concussive symptoms may qualify for a 504 plan, because their physical and/or mental impairment may substantially limit one or more major life activities (U.S Department of Health and Human Services, 2006). Therefore, they may need an accommodation plan under Section 504, thus school personnel knowledge of concussions is invaluable in the implementation of this type of plan.

**School Personnel Knowledge of Concussions**

With a relatively high percentage of students sustaining concussions (CDC, 2011) and the need for appropriate accommodations or modifications, it is essential to determine the amount of knowledge school personnel have regarding concussions. Research indicates school personnel often lack knowledge and training in recognizing and responding to concussions and other forms of traumatic brain injuries (Hooper, 2006; Farmer & Johnson-Gerard, 1997; Walk, 2011). It has been reported that school psychologists have minimal knowledge about traumatic brain injury among students (Davies, 2013; Hooper, 2006), which may be due to a lack of training in traumatic brain injury in school psychology graduate programs. Teacher education programs lack training in this area as well (Farmer & Johnson-Gerard, 1997; Walk, 2011). The CDC has a program called “Heads Up”, which has been effective for training coaches about concussions (Sarmiento, Mitchko, Klein, & Wong, 2010); therefore a training program of this type may be beneficial for school personnel. Clearly there is a need for increased
awareness and professional development on recognizing and responding to concussions to assist school personnel in servicing students who have sustained a concussion (Glang, 2008).

**Programs to Increase School Personnel’s Knowledge on Concussions**

Dr. Steven Cuff from Nationwide Children’s Hospital (2011) in Ohio, encourages teachers to learn to identify students who may have sustained a concussion. Nationwide Children’s Hospital Sport Medicine helped develop “Concussions in the Classroom” for teachers. This program trains teachers, so in turn they can help students who have sustained a concussion be successful in the classroom. As Hooper (2010) stated, there is a need for training educators about traumatic brain injury, which includes concussions. Additionally, the Center on Brain Injury Research and Training’s (CBIRT, 2012) goal is to help train educators, as well as to develop interventions to improve student outcomes in education, and quality of life for students who have sustained a traumatic brain injury. CBIRT also facilitates the work of the Oregon Concussion Awareness and Management Program (OCAMP, 2012). OCAMP’s website can help inform educators on how to accommodate students who have sustained a concussion; it is a resource for parents, coaches, and educators.

**Professional Development**

Training programs in general can be beneficial for school personnel, which in turn, can benefit students. Remaining current on knowledge and skills is imperative, especially for those in education (Somers & Skorova, 2002). Professional development promotes both the personal and professional growth of educators in a formal and systematic approach (Steyn, 2006).
Professional development in education has traditionally involved teachers attending a lecture away from their school building, and garnering information from an outside expert (Glang et al., 2010). Teachers are then expected to utilize and apply the knowledge gained from the training in their classroom (Wald & Castleberry, 2000). However, professional development without follow-up is rarely effective when it comes to retaining knowledge and implementing newly learned information and skills (Glang et al., 2010).

**Best practices in professional development for school personnel.** According to Steyn (2006), there are certain aspects to a high quality and effective professional development training. The role that the professional development presenter plays is critical for successful training experiences. It is essential that leaders are role models and display knowledge in the area, provide inspiration, encourage teamwork, and provide individual support. The leaders are responsible for ensuring that they communicate effectively and help individuals learn the material and skills. Additionally, if the leaders are effective in their approach, it is more likely attendees’ practice will change as a result of the training.

Effective professional development requires school personnel to: practice their new skills in their environment (Yoon, Duncan, Lee, Scarloss & Shapley, 2007); utilize strategies that are evidence-based and that are linked to instructional content (Jones & Chronis-Tuscano, 2008); and receive consultation on the targeted skills (Fuchs & Fuchs, 1992). According to Glang et al. (2010), professional development for traumatic brain injury should include: evidence-based interventions; supervision with newly attained
skills in the training site and classroom; and continued mentoring, feedback, and consultation in teachers’ classrooms.

**Follow-up and consultation.** Once a professional development session has convened, follow-up and consultation reinforces the knowledge and skills that were taught. According to Ray (2011), knowledge and skills of traumatic brain injury were retained from a professional development training at the two-month follow-up; however knowledge and skills dissipated at the one-year follow-up. This could be due to the lack of ongoing practice of skills, mentoring, feedback, and/or consultation that Glang et al. (2010) asserted is necessary. Preceding a professional development session, consultation can help school personnel make best practice decisions to assist students who have sustained concussions. Furthermore, according to Noell, Witt, Gilbertson, Ranier, & Freeland (1997), seven to eight professional development sessions are needed in order for consultation to produce lasting effects on practice in the instructional setting.

It is clear that professional development must go beyond the one day training model which typically occurs. In order for professional development to result in application of skills in the classroom and have a long-lasting impact on school personnel’s practice, there needs to be on going consultation and continued dissemination of information after the initial training. There is currently a lack of research on school-based concussion trainings that include continued consultation and follow-up with participants. This study investigated the impact of a school-based training on recognizing the signs and symptoms of concussion and providing accommodations for students who have sustained a concussion upon returning to the classroom. In addition, the impact of
ongoing dissemination of information, feedback, and consultation in trainees’ classrooms was examined.
CHAPTER III

METHOD

Research Questions and Hypotheses

This study examined the following research questions: 1) What do school personnel know about concussions? 2) What is their level of knowledge following a school-based training on concussions? 3) Does ongoing consultation and continued dissemination of information affect retention of knowledge and improve practice with students who have sustained a concussion?

It was hypothesized that school personnel would have minimal knowledge related to concussions prior to school-based training and that knowledge would increase immediately following training. These hypotheses were based on research by Hooper (2006), Farmer & Johnson-Gerard (1997) and Walk (2011) indicating that school personnel often lack knowledge and training in recognizing and responding to concussions and other forms of traumatic brain injuries, but do gain knowledge immediately following training. It was also hypothesized that school personnel who received ongoing consultation and continued dissemination of information after the school-based training on concussions would retain more knowledge and improve services for students who sustained a concussion than school personnel who did not receive ongoing consultation and further dissemination of information. This hypothesis was
supported by Glang et al., (2010) research that follow-up and consultation is imperative for knowledge retention and skill application.

**Research Design**

This study used a quasi-experimental design, examining the effect of the independent variable (ongoing consultation and continued dissemination of information) on the dependent variable (knowledge retention and application of skills regarding concussion). In addition, the final questionnaire included a qualitative component in the form of an open-end question asking participants to describe/explain their experience with the student or students who sustained a concussion and how they serviced/accommodated such students. Furthermore, qualitative feedback was sought from school personnel and parents who received consultation, even if they did not participate in the initial training.

**Participants**

The participants in this study included 28 teachers, paraprofessionals, school counselors, administrators, a secretary, and an athletic director from two separate school districts in the Midwest Region of the United States of America (see Table 1). This region was selected based on convenience sampling. School personnel who consented to participate in this study received refreshments at the training and were entered into a drawing to win a $50 Visa gift card, provided they signed-in when they came to the training and follow-up session. Four participants (two participants from each district) received a $50 Visa gift card, which was purchased through research grant money Dr. Susan Davies received; it was expected this incentive would increase school personnel participation in the study.
Demographic data was gathered through questionnaire items including: gender, highest degree earned, career title, grade(s) the participant served, and whether the participant worked in regular education or special education. Additional information was collected on whether the participants had prior concussion training, experience managing concussion in the academic setting, and if they or someone close to them had ever sustained a concussion.

Table 1

*Participant’s Demographic Data*

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**Prior Concussion Training**

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**Experience Managing Concussion in Academic Setting**

<table>
<thead>
<tr>
<th>Experience</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>No</td>
<td>17</td>
<td>85%</td>
</tr>
</tbody>
</table>

**Personally Sustained a Concussion or Someone Close to You**

<table>
<thead>
<tr>
<th>Sustained</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td>55%</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>45%</td>
</tr>
</tbody>
</table>


Materials

Training. The 60 minute school-based training involved a presentation on concussions covering: prevalence, causes, signs and symptoms, assessment, impact of concussions on students in school, school reentry, and accommodations (see Appendix A). There was a short video on concussions, as well as examples and scenarios of concussions. The participants were asked to respond to questions throughout the training.

Instrument. The questionnaire (see Appendix B) used in this study was a modified version of the Concussions in the Classroom Questionnaire by Dr. Cuff from Nationwide Children Hospital (2012) and Sports Concussion Parent Measures by Dr. Ann Glang of the Center for Brain Injury Research and Training (2012). The questionnaire was modified to fit this study by altering the wording to make it teacher-oriented (i.e., “teacher” instead of “parent,” “your student” instead of “your child”). It was a multiple choice questionnaire; questions pertained to demographics, education level, signs and symptoms, assessment, accommodations for students who sustained a concussion, and scenarios involving concussions. The questionnaire administered at the four-month follow-up included an open-ended question, which allowed for free response for school personnel who had a student who sustained a concussion during the time of the study. The question asked participants to describe/explain their experience with the student or students who sustained a concussion and how they serviced/accommodated the student or students. The participants filled out the questionnaires, and the researcher/intern school psychologist scored the questionnaires calculating a total percentage. Because the questionnaire was modified from two other instruments, reliability and validity were unknown. Thus, a pilot test was conducted with graduate
students (school counselors, school psychologist, community counselors, school teachers, and higher education professional) to determine the approximate length of time needed to take questionnaire and to ensure the instrument measured what it was intended to measure. Pilot testing also ensured the language of the questionnaire was clear and understandable. Thus, some questions and responses were reworded based on the feedback from the pilot test results.

**Consultation materials.** The consultation materials used in this study included: *Head’s Up to Schools: Know Your ABCs - A Fact Sheet for Teachers, Counselors, and School Professional* (CDC, 2012), which defined a concussion, signs/symptoms, danger signs, how to recognize a concussion, how to respond to a student that sustained a concussion, and what to look for after a student has sustained a concussion. Another resource that was used was the *Teacher Packet* (ORCAS, 2011), which gave an example of return to academics, accommodation suggestions, and an accommodation plan for healthcare providers. Finally, a progress monitoring sheet was developed by the researcher/intern school psychologist for teachers and school nurses to document signs/symptoms and accommodations (see Appendix C).

**Follow-up emails.** Continued dissemination of information on concussions was provided to the experimental group via email through MailChimp (a free marketing email service in order to design and track HTML email campaigns). School personnel received eight follow-up emails (see Appendix D) regarding sign/symptoms of concussions, a PAR app for a smart phone on concussion recognition and response, House Bill 143 on head injuries, contact persons (researcher/intern school psychologist and school nurses),
and specific accommodations recommendations for students who sustained a concussion between August and December 2012.

**Procedure**

The researcher/intern school psychologist obtained university IRB approval from the University of Dayton and consent from the two participating school districts, in addition to participant consent, in order to carry out this research study. The researcher in this study is also the intern school psychologist, thus she played a dual role. Prior to the school-based concussion training, all school personnel were notified that by completing and turning in the questionnaires they consented to participating in an anonymous research study on school-based concussion training.

The experimental group participated in a 60 minute school-based training on concussions that contained a Pre-Training Questionnaire and Post-Training Questionnaire on the same day, August 2012 in the experimental group’s school district. Furthermore, ongoing consultation and further dissemination of information on concussions was delivered after the training for four months between August 2012 and December 2012 in the experimental group’s school district, via email and/or face-to-face. Then the experimental group completed a Follow-Up Questionnaire December 2012 in their school district. The control group also participated in a 60 minute school-based training on concussions that contained a Pre-Training Questionnaire and Post-Training Questionnaire on the same day, September 2012 in their school district; and the control group completed the Follow-Up Questionnaire January 2013 in their school district, they did not receive ongoing consultation and further dissemination of information on concussions (see Table 2).
The experimental group received continued dissemination of information on concussions via email eight times through MailChimp. School personnel in the experimental group received informational resources on concussions and specific accommodations recommendations for students who sustained a concussion. Furthermore, if a teacher, paraprofessional, school counselor, administrator, and/or school nurse observed a student who may have sustained a concussion; he/she was asked to notify the researcher/intern school psychologist to receive consultation regarding the student. Once a referral was made to the researcher/intern school psychologist, all teachers were contacted via email and/or face-to-face regarding concussion signs/symptoms and accommodations for the student while he/she was symptomatic. The researcher/intern school psychologist conducted formal and informal consultation. When the researcher used formal consultation, she followed the problem-solving process, which included problem identification, problem analysis, intervention/plan, and intervention evaluation (Kratochwill, & Bergan, 1990). Additionally, the student’s parents were contacted about signs/symptoms to look for and provided with an explanation of accommodations teachers may implement while their child was symptomatic.
Table 2

*Procedure for Experimental and Control Group*

<table>
<thead>
<tr>
<th>Experimental</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/2012: Pre-Training Questionnaire</td>
<td>09/2012: Pre-Training Questionnaire</td>
</tr>
<tr>
<td>08/2012: Training</td>
<td>09/2012: Training</td>
</tr>
<tr>
<td>08/2012: Post-Training Questionnaire</td>
<td>09/2012: Post-Training Questionnaire</td>
</tr>
<tr>
<td>08/2012-01/2013: Consultation</td>
<td></td>
</tr>
<tr>
<td>08/2012-12/2012: Additional Information</td>
<td></td>
</tr>
<tr>
<td>12/2012: Follow-Up Questionnaire</td>
<td>01/2013: Follow-Up Questionnaire</td>
</tr>
</tbody>
</table>

Questionnaires were used to gather information from both the experimental and control group regarding their knowledge on concussions. There were three administrations of the questionnaire to participants in both school districts (experimental and control group); Pre-Training Questionnaire, Post-Training Questionnaire, and four month Follow-Up Questionnaire. The Pre-Training Questionnaire and Post-Training Questionnaire were collected by the researcher/intern school psychologist on the day of the training. The Follow-Up Questionnaire was administered on site at both school districts four months after the training. In order to track who attended the training and who completed all three questionnaires, there was a sign-in sheet the day of the training and at the four month Follow-Up Questionnaire session. This was to ensure participants completed all three questionnaires in order to be entered to win a $50 Visa gift card.

The multiple administrations of the questionnaire allowed the researcher/intern school psychologist to analyze the participants’ responses about concussion knowledge and practice from Pre-Training Questionnaire to Post-Training Questionnaire, and
Follow-Up Questionnaire (after receiving or not receiving continued dissemination of information and consultation) using the Statistical Package of the Social Sciences (SPSS).

The list of participant’s names from the sign-in sheet and questionnaires were kept in the researcher’s locked filing cabinet, where no names appeared directly on the questionnaires. After the study was completed, all questionnaires and list of names were shredded. The data continued to exist electronically, but with no identifying information in the data file.
CHAPTER IV
RESULTS

Twenty-eight school personnel from both the control and experimental group attended the training and completed the Pre-Training Questionnaire prior to training and the Post-Training Questionnaire immediately following training. However, eight participants (two participants in the control and six participants in the experimental) did not complete the Follow-Up Questionnaire four months after the training, therefore their data were excluded. Twenty school employees completed the study by attending the school-based training on concussions and completing all three questionnaires; Pre-Training Questionnaire prior to training, Post-Training Questionnaire immediately following training, and Follow-Up Questionnaire four months following training. There were six participants in the control and fourteen participants in the experimental group.

A mixed between-within subjects analysis of variance (ANOVA) was conducted to assess the impact of school-based training on concussions (continued follow-up and consultation, no follow-up and consultation) on participants’ scores on the questionnaire, across three time periods (pre-training, post-training, and four months post-training). A level of $p = .05$ was used to determine significance in SPSS. There was no significant interaction between continued follow-up/consultation, and no follow-up/consultation; Wilks’ Lambda = .94, $F (2, 17) = .58, p = .57$, partial eta squared = .06. There was a main effect for training Wilks’ Lambda = .37, $F (2,17) = 14.24, p < .0005$, partial eta
squared .63, with both school districts demonstrating an increase in concussion knowledge, recognition, and response across the three time periods (see Table 3 and Figure 1). The main effect for follow-up and consultation was not significant, \( F(1, 18) = .68, p = .42 \), partial eta squared = .04, suggesting no effectiveness of follow-up and consultation on retention of participant knowledge.

Table 3

*Comparisons Between Experimental and Control Group (Mean Percent Correct, Standard Deviation, N) on Questionnaire Across Three Testing Times*

<table>
<thead>
<tr>
<th>Group (N)</th>
<th>Pre-TQ</th>
<th>Post-TQ</th>
<th>Follow-UQ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Experimental (14)</td>
<td>77.85 (12.58)</td>
<td>90.21 (4.84)</td>
<td>87.28 (5.74)</td>
</tr>
<tr>
<td>Control (6)</td>
<td>80.33 (6.56)</td>
<td>93.33 (5.57)</td>
<td>88.00 (4.00)</td>
</tr>
</tbody>
</table>

Pre-TQ = Pre-Training Questionnaire, Post-TQ = Post-Training Questionnaire, Follow-UQ = Follow-Up Questionnaire
Descriptive Results

Both the experimental and control group demonstrated a moderate level of concussion knowledge prior to training. Both groups increased their test scores immediately following the training; the experimental group increased their score by 12.36% and the control group increased their score by 13%. Furthermore, both the experimental and control group decreased their test scores from Post-Training Questionnaire to Follow-Up Questionnaire; the experimental group decreased their score by 2.93% and the control group by 5.33%; however the decrease was not statistically significant.

Additionally, data were collected on ongoing consultation and follow-up with school personnel in the experimental group. Eight follow-up emails were sent out to
participants between August and December 2012; 92.3% of the participants received the follow-up emails, whereas 7.2% did not (see Figure 2). Of the 92.3% of participants who received the follow-up emails, 80% indicated on the Follow-Up Questionnaire, “They were beneficial”, 20% indicated, “They were somewhat beneficial”, and 0% indicated, “They were not beneficial” (see Figure 3). Between August and January the researcher/intern school psychologist consulted on 17 cases (see Figure 4) in the experimental group; three cases were with participants (school personnel who attended the training), 14 cases were with nonparticipants (school personnel who did not attend the training); this is due to the researcher/intern school psychologist offering her services and consultation skills to help school personnel manage student’s who sustained concussions. The school psychologist in the control group’s school district consulted on zero concussion cases between August 2012 and January 2013; this is due to the school psychologist not informing school personnel that she had the skills to consult on concussion cases; there was a lack of concussion awareness. Furthermore, the experimental group reported that they served 15 students who sustained a concussion, whereas the control group reported they served one student who sustained a concussion in their classrooms between August 2012 and January of 2013 (see Figure 5). Though there was only one student identified and serviced in the control group, it is expected that the control district had approximately the same percentage of concussions; however they went unidentified and unreported by the school. The experimental district had 2,500 students, whereas the control district had 650 students. Therefore, it is expected that the control group should have had approximately 4-5 reported concussion between August 2012 and January 2013. This data were collected through the Follow-Up Questionnaire.
Figure 2

*Follow-Up Emails Received by Participants in the Experimental Group*

- Yes: 92.8%
- No: 7.2%

Figure 3

*Follow-Up Emails Beneficial*

- Yes: 80%
- Somewhat: 20%
- No: 0%
Figure 4

*Concussion Cases Consulted on with School Personnel*

![Bar chart showing concussion cases consulted on with school personnel.]

- Researcher/Intern School Psychologist: 17 cases
- School Psychologist in Control: 0 cases

Figure 5

*Number of Students Serviced by the Experimental and Control Group*

![Bar chart showing number of students serviced.]

- Experimental Group: 15 students
- Control Group: 1 student
School nurses were typically the first to refer students to the researcher/intern school psychologist regarding a student who sustained a concussion; 68.8% of the time school nurses were the first to refer a student who sustained a concussion, 31.3% of the time school teachers were the first to refer a student who sustained a concussion, and 6.2% of the time school counselors were the first to refer a student that sustained a concussion (see Figure 6). Once a referral was made, all teachers were contacted via email and/or face-to-face regarding concussion signs/symptoms and accommodations for the student while he/she was symptomatic. Furthermore, the student’s parents were contacted about signs/symptoms to look for and accommodations teachers may implement while their child was symptomatic.

Figure 6

School Personnel to Make Initial Referral

Open-end feedback was sought from people who received consultation, even if they did not participate in the initial training. Teachers, parents, coaches, and nurses
were all very appreciative of the concussion management services that were available to them. Below is some of their feedback.

“Since my first email (8/23/12) I’ve had more students with concussions so the information from your session is proving to be very valuable. I don’t think I have any further questions at this time but if something comes up I’ll definitely shoot you an email. Thanks!” Teacher (Participant)

“Thank you. It does make me feel better that you are there and everyone will be well informed!” Parent (Non-Participant)

“That is so nice – thanks so much for contacting the teachers and also, the parents. If I was a parent, I would be so appreciative… must be a scary time for them and for the student.” School Nurse (Non-Participant)

“Thanks for the great talk on concussions given tonight. We are better prepared now. I will look for the card in our medicine kit and also inform our parents how the process works before a student athlete is allowed back to practice and compete after suffering a concussion. Again, thanks for the time preparing and presenting this important athlete welfare information regarding concussions.” Coach (Non-Participant)
CHAPTER V
DISCUSSION

The purpose of this study was to evaluate school personnel’s knowledge and skills related to concussions, examine the efficacy of a school-based training on concussions, and determine if a school-based training paired with ongoing consultation and continued dissemination of information on concussions would improve retention of knowledge and school-based services for students who sustained concussions.

Review of Findings

Results indicated that school personnel had a moderate level of concussion knowledge prior to training, thus they did not have the significant lack of knowledge indicated by Hooper, (2006), Farmer & Johnson-Gerard (1997), and Walk (2011). This could have been due to the participant’s interest in concussions. Thus, if participants were already interested in concussions, they may have had prior knowledge on concussions. Therefore, they utilized that knowledge while taking the questionnaire.

Furthermore, results indicated there was a main effect for training in both groups, indicated by an increase in concussion knowledge, recognition, and response from Pre-Questionnaire to Post-Questionnaire. Thus, the results of this study support Ray’s (2011) findings that school personnel retain knowledge immediately following training. The participant’s engaged in the training, retained the knowledge immediately following the training, and applied it on the Post-Questionnaire.
However, results indicated ongoing consultation and continued dissemination of information did not have a statistically significant impact in this study as was suggested by Glang et al., (2010). Thus, the hypothesis of school personnel who received ongoing consultation and continued dissemination of information after the school-based training on concussions would be more likely to retain knowledge and improve practice with students who have sustained a concussion, than school personnel who did not receive ongoing consultation and further dissemination of information following the training was not supported. The non-significant difference between the experimental and the control group may be due to the fact that school personnel who attended the concussion training may already have had an invested interest in concussions, therefore their Post-Training Questionnaire and Follow-Up Questionnaire did not show a significant difference in scores. Furthermore, there was a small sample size; best practice recommends there needs to be 30 participants in each group in order to obtain statistically valid results. Finally, the instrument used to measure school personnel’s knowledge and practice may not have captured all facets of concussion recognition and response, or could have been too easy.

While the data from the questionnaires did not show a statistically significant difference between groups across time, the project created an interesting and unexpected outcome. The researcher/intern school psychologist was contacted to consult on multiple (\(N = 17\)) concussion cases, whereas the school psychologist in the control district consulted on zero cases. Furthermore, the researcher/intern school psychologist was asked by the athletic director to present on concussions to school athletic coaches. Additionally, prior to training, consulting with school personnel on concussions, and disseminating information on concussions, students who sustained a concussion did not
receive specific accommodations in the classroom; however, they now do receive accommodations in the classroom due to the increased knowledge on concussion recognition and response in the district.

Clearly, the research project was effective in creating concussion awareness in the experimental group’s school district through having a leader (intern school psychologist) who was perceived as a role model and an expert resource on responding to concussions in the district. This is based on Steyn’s (2006) professional development research in which, he found it is essential that professional development leaders are role models and display knowledge in the area, provide inspiration, encourage teamwork, and provide individual support. This was available for the experimental group by the researcher/intern school psychologist demonstrating knowledge to school personnel by providing information on concussions, consulting on concussion cases, developing a team for when a student sustained a concussion, and supporting individual teachers and school nurses while they serviced students who sustained concussions. Furthermore, because the leader was effective in her approach in the present study, more school personnel sought out assistance for students who sustained a concussion and were more likely to change their practice by implementing accommodations, which they did not do prior to training.

The experimental group (participants who attended training) reported they served 15 students who sustained concussions by implementing accommodations in their classroom while the students were symptomatic. For example, they allowed such students rest breaks during class, time in the nurse’s office to lie down, and the availability of a quiet room to work. They also addressed sensory issues by allowing
students to wear sunglasses, placing them away from the window, and dimming the lights in the room. Workload was reduced by postponing homework, quizzes, and tests and/or exempting students from assignments. Effective professional development requires school personnel to practice their new skills in their environment (Yoon, Duncan, Lee, Scarloss & Shapley, 2007), which many of the school personnel in the experimental group did through implementation of accommodations while a student was symptomatic. School personnel in the present study who serviced one student who sustained a concussion were more likely to service other students who sustained a concussion with appropriate accommodations. Once school personnel have experience implementing accommodations for a student who has sustained a concussion, they feel more comfortable with the process and implementing accommodations for other students who sustain concussions.

Throughout this study relationships were built with the school nurses, teachers, administrators, and the athletic trainer in order to best serve students who sustained a concussion. As indicated in the results section, school personnel and parents were very appreciative of the concussion services provided. The school nurses were typically the first to report to the researcher/intern school psychologist that a student sustained a concussion. As the medical professional in the district, they were typically the one to monitor physical symptoms and provide pain medication, if needed. Once the researcher/intern school psychologist was notified about the student, all of the student’s teachers were notified about appropriate accommodations for the student based on the student’s symptoms. Furthermore, teachers received a list of concussion signs and symptoms, and danger signs to be cognizant of while the student was symptomatic. The
student’s parents were also notified of concussion signs and symptoms and the accommodations their child would be receiving while he/she was symptomatic. As the student’s symptoms decreased, the teachers were notified, and the accommodations were reduced.

The researcher/intern school psychologist also established a relationship with the athletic director and athletic trainer in order to begin developing a seamless transition from the sidelines to the classroom. Because the athletic department operates under the federal HIPPA law, which is a right to privacy, they were permitted to notify the school when a student sustained a sports-related concussion. Therefore, once a relationship was built between the researcher/intern school psychologist and the athletic trainer, the trainer requested that parents sign a release form, so she could share with the researcher/intern school psychologist that a student sustained a concussion. This allowed the researcher/intern school psychologist to notify the teachers, so the teacher could put the accommodations in place prior to the student’s return to the classroom.

Overall, concussion awareness increased among participants in the present study and best practices were implemented in the experimental group’s district. Concussion awareness was initiated through a school-based training, continued dissemination of information, and consultation; and through developing relationships with school personnel in the district. In addition, participants who attended the training shared with their colleagues that the researcher/intern school psychologist was a leader and knowledgeable on concussion recognition and response. Thus, participants and nonparticipants sought out the researcher/intern school psychologist in order to consult about students who sustained concussions.
Limitations

There are limitations to this study and its design. The first limitation is the method used to recruit participants; they were acquired through convenience sampling. This study could be improved if the sample was acquired through systematic randomization. The second limitation is participation and response rate. Because the training was not mandated by the school, there was low participation and response rate, thus a significant difference between groups could not be determined. Therefore, it is essential to be creative with incentives in order to obtain optimal participation in the training and responses on the questionnaire. Third, reliability and validity of the instrument was unknown because the questionnaire was modified from two previously used questionnaires. Thus, it would be beneficial to have a well established measure with known reliability and validity. The fourth limitation is that the researcher was also the intern school psychologist who consulted with school personnel and collected all the data. In order to reduce bias, it would be ideal for the researcher and intern school psychologist to be two different people, and not have a dual role.

Future Research

Future research should replicate this design with more participants to determine its statistical effectiveness. In addition, researchers should examine concussion management teams, school-based concussion management protocols, return-to-academics programs, and return-to-play guidelines to determine their effectiveness in supporting students who have sustained concussions. Additionally, it would be beneficial to examine how school athletic departments communicate information regarding sport-related concussions to school administration, school nurses, and school psychologists.
REFERENCES


Agenda

• Define concussion
• Prevalence
• Signs/symptoms
• Assessment
• Impact of concussions on students
• Accommodations
• Consultation

Concussion Statements - T/F

• Concussions are common in sports and no cause for concern

• If there is no visible injury, everything is okay

• A symptomatic athlete may return to play as long as the symptoms are “mild”

• All concussion are the same
Definition of Concussion

• A concussion is considered a mild traumatic brain injury: “it is a form of brain injury that disrupts brain function and produces subtle effects for days, weeks, or months” (Lewandowski & Rieger, 2009, p. 102)
• A concussion is caused by a direct blow or jolt to the head, face, or neck; or a blow to the body that causes the head and brain to shift rapidly back and forth; it results in a short-term impairment of neurological function (CDC, 2011; McCroy et al., 2008)
Prevalence

1.7 million people sustain a TBI

52,000 people die

275,000 people are hospitalized

1.365 million (about 80%) people are released from emergency room

75% are Concussions (mTBI)

Center for Disease Control and Prevention. “Traumatic Brain Injury.”

Children & Adolescents at Risk

• Children and adolescents are at the greatest risk for sustaining a concussion
Causes of Concussion

Center for Disease Control and Prevention. “Traumatic Brain Injury.”
http://www.cdc.gov/traumaticbraininjury/causes.html

Causes of Concussion Continued

- 35.2% Falls
- 17.3% Motor Vehicle
- 16.5% Struck By/Against
- 21.0% Unknown
- 10.0% Assaults

Center for Disease Control and Prevention. “Traumatic Brain Injury.”
http://www.cdc.gov/traumaticbraininjury/causes.html
Signs

- Usually there is no physical evidence of injury
  - Neurometabolic dysfunction (impairs the brain's function) rather than structural injury
- May experience change in mental status or conscious
  - Brief (60 minutes or less) loss of conscious (LOC)
  - Only 10-20\% experience LOC

Symptoms

*Duration of symptoms vary (minutes, days, weeks, months, or longer)*

**Cognitive (thinking)**
- Difficulty thinking clearly
- Feeling slowed down
- Difficulty concentrating
- Difficulty remembering new information

**Physical**
- Headache
- Fuzzy or blurry vision
- Nausea or vomiting (early on)
- Sensitivity to noise or light
- Balance problems
- Feeling tired, having no energy

**Emotional/Mood**
- Irritability
- Sadness
- More emotional
- Nervousness or anxiety

**Sleep**
- Sleeping more than usual
- Sleep less than usual
- Trouble falling asleep

Center for Disease Control and Prevention. “Concussion.”
http://www.cdc.gov/concussion/signs_symptoms.html
Post-Concussive Syndrome

- Symptoms continue after concussion
- Three or more signs or symptoms must persist
- Likely to affect
  - Academic work
  - Classroom participation
  - Behavior
  - Relationships
  - Extracurricular activities
- Most concussions dissipate in two to three weeks

Second-Impact Syndrome

- Suffering a second blow to the head while recovering from an initial concussion can lead to diffuse brain swelling and/or permanent brain damage
- Second Impact Syndrome can be fatal
Teacher Assessment

- Concussion Signs and Symptoms CHECKLIST
- If it appears the student has a concussion contact the school nurse, parent and intern school psychologist

Concussions Affect Students

<table>
<thead>
<tr>
<th>Cognitive</th>
<th>Physical</th>
<th>Emotional/Mood</th>
<th>Sleep</th>
</tr>
</thead>
</table>
| • Interfere with the ability to learn, memorize, and process information | • Interfere with focus and concentration | • May cause frustration because the student does not understand where these emotions are coming from  
• Frustration with schoolwork may worsen emotional symptoms | • Not enough sleep or sound sleep can compound all other factors listed here |
Doctor’s Note for Student

• Absent from school or half-day attendance
  – Focus, memory, and concentration all are affected by a concussion; decreasing activity in the brain helps to decrease symptoms and aids healing
• Avoid extensive computer use, texting, video games, television, music, loud music, and music through headphones
  – All of these activities make the brain work harder to process information and can exacerbate symptoms and slow the recovery process
• No participation in any physical activity until cleared by a physician, including gym class and sport activities
  – Physical activities after a concussion often magnifies already existing symptoms. There is also the risk of Second Impact Syndrome

Figuring out what problems students may be having

• Speak with the student directly
• Ask specific questions, such as:
  – How is your __________? (Insert symptom: headache, fatigue)
  – Are you having trouble focusing or concentrating?
  – Are lights and/or noises worsening your symptoms?
  – Are you having trouble remember things?
  – What are you having the most difficulty with in class?
• Daily follow-up: accommodations may change
Accommodations: Easily Distracted

- Break down assignments into small chunks that can be completed in a half hour or less; then provide a break
- Give short and concise written instructions or have student write instructions down in a step-by-step sequence
- Allow student to take test in separate quite room
- Give student preferential seating in the front of the room so he or she may better be observed and less easily distracted

Accommodations: Sensitivity to Light or Noise

- Move student away from window or dim light in room
- Allow student to wear sunglasses and/or hat
- Allow student to be excused from assemblies and eat lunch in a location that is less noisy than the cafeteria
- Encourage the student to avoid events/places were there are loud noises and/or bright lights
**Accommodations: Memory Problems**

- Provide class notes to student, or allow him/her to use tape recorder
- Allow the use of fact sheets on tests to reduce the demand on memory
- Use multiple choice and open-book test (rather than short answer or essay) to minimize demand on memory
- Help student create ways to memorize information (mnemonic devices, association, rehearsal, repetition, etc.)

**Complaint of Symptoms' Worsening Continued**

- Give the student the option to leave and return to class as needed for rest in a quiet, controlled environment, such as the nurses office
- If symptoms do not subside with a break, the student may need to leave school early to rest
- Communicate any changes to the nurse, school psychologist, certified athletic trainer, student’s other teachers, administrator, and parents
• What’s a concussion, ANYWAY?
• http://brain101.orcasinc.com/5000/

Questions

• If you have a student that sustains a concussion please contact me at jenna.sandlund@k12.oh.us
• I am seeking to consult and assist school personnel with accommodations for students that have sustained a concussion
• Nationwide Children's Hospital (2011). Concussions in the classroom.
APPENDIX B

MEASURE

Concussion Questionnaire 1: By completing this questionnaire you are consenting to participate in a research study on a school-based concussion training. This questionnaire is confidential and will be locked in a filing cabinet after completion. Once data has been entered, the questionnaire will be shredded. Please fill out the questionnaire to the best of you knowledge. Thank you!

1. Please indicate your role in the school:
   ___ Teacher
   ___ Nurse
   ___ School Counselor
   ___ School Psychologist
   ___ Paraprofessional
   ___ Occupational Therapist
   ___ Speech and Language Pathologist
   ___ Administrator
   ___ Athletic Trainer
   ___ Athletic Coach
   ___ Other; Please Indicate: ____________________________

2. Highest level of education:
   ___ High School Diploma
   ___ Associates Degree
   ___ Bachelor’s Degree
   ___ Master’s Degree
   ___ Doctoral Degree

3. In what educational level are you primarily involved in?
   ___ Preschool
   ___ Elementary School (Kindergarten – 5th Grade)
   ___ Middle School (6th Grade – 8th Grade)
   ___ High School (9th Grade- 12th Grade)

4. Areas of certification(s)/licenses(s):
   ___ General Education
   ___ Special Education
___ Other; please indicate: ________________________________________ (i.e., administrative, school psychology)

5. Gender
   ___ Male
   ___ Female

6. Have you had any prior concussion training?
   ___ Yes
   ___ No
   Please briefly describe this training:___________________________________________________________
   ____________________________________________________________________

7. Have you ever been to a presentation or seminar on managing a concussion in the academic setting?
   ___ Yes; Title of Presentation/Seminar & Date____________________________
   ___ No

8. Do you have previous experience in managing a concussion in the academic setting?
   ___ Yes, please explain:___________________________________________________________
   ___ No

9. Have you personally or anyone close to you ever sustained a concussion?
   ___ Yes
   ___ No

10. Which of the following are signs and symptoms of concussion? Check all that apply.
    ___ Headache or pressure in your head
    ___ Double or fuzzy vision
    ___ Nosebleed
    ___ Problems with balance
    ___ Dizziness
    ___ Sharp burning pain in neck and shoulders
    ___ Problems remembering things
    ___ Difficulty concentrating
    ___ A sluggish or foggy feeling
    ___ Black eye
    ___ Sensitivity to light or noise
    ___ Nausea
    ___ Sleep problems
    ___ Chest pain
11. Regarding concussions, which statements are true? Check all that apply.
   ___ A concussion can be diagnosed by a CAT 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 performance in school
   ___ A concussion is an invisible injury
   ___ A concussion will usually heal on its own with rest

12. What things are likely to make concussion symptoms worse? Check all that apply.
   ___ Sleeping more than usual
   ___ Stretching
   ___ Surfing the internet
   ___ Schoolwork

13. True/False: Two students in your class 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 recover at same rate.
   ___ True
   ___ False
   ___ I don’t know

14. A student brings you a note that diagnoses him with a concussion. He complains of a headache, dizziness, and trouble remembering things. Regarding school attendance, which of the following are appropriate courses of action? Check one answer.
   ___ He should be absent from school until his headaches resolve
   ___ He may attend school regardless of symptoms so he doesn’t fall behind in his work
   ___ He may come to school long enough to take any scheduled tests
   ___ He may attempt to attend school and go home if his symptoms continue to worsen during the day

15. A student with a concussion is in your class. What are some common signs that class work is becoming more difficult for the student? Check all that apply.
   ___ Increased forgetfulness
   ___ Decreased sadness
   ___ Impulsive behavior during class
   ___ Uncontrollable laughter
16. A student with a concussion complains of being easily distracted from her work. What accommodations would you use to help her overcome this problem? Check all that apply.
   ___Move her seat to the front of the classroom
   ___Allow her to wear sunglasses
   ___Allow her to use fact sheets during tests
   ___Break assignments down into small chunks

17. A concussed student complains of being sensitive to light while in class. What accommodations would you use to help her overcome this problem? Check all that apply.
   ___Move her seat to the front of the classroom
   ___Allow her to wear sunglasses
   ___Allow her to use fact sheets during tests
   ___Move student away from or dim lights in room

18. A concussed student complains of memory problems. What accommodations would you use to help him overcome this problem? Check all that apply.
   ___Move his seat to the front of the classroom
   ___Allow him to wear sunglasses
   ___Allow him to use fact sheets during tests
   ___Provide class notes to student or allow student to use tape recorder

19. True/False: A concussion only occurs when a student looses consciousness.
   ___True
   ___False
   ___I don’t know

20. True/False: You have to be hit on the head to have a concussion.
   ___True
   ___False
   ___I don’t know

21. Anna tripped on the field during physical education and bumped her head on a sprinkler head. The teacher tells you that she would like Anna to be checked out by a health care professional if she shows any signs of a concussion over the next few days. The next morning Anna comes to school and is tired, moody, and complains about the noise level in the classroom. Otherwise, she seems fine. True/False: You should take Anna to get checked out by a healthcare professional.
   ___True
   ___False
   ___I don’t know
22. Holden was outside for recess with his second grade class. They were running around, climbing on the monkey bars, and swinging. As Holden and his friends were playing tag, Holden ran into a pole on the playground and bumped his head. When he returned to class he was moody, and complained of a headache, so he put his head down on the desk instead of reading and completing his worksheet. What should the teacher do? Check all that apply.

___Ask Holden to sit up and complete his worksheet
___Ask Holden to go see the school nurse
___Notify the school psychologist
___Allow Holden to sleep at his desk

Thank you for taking the time to complete this questionnaire!

This questionnaire was adapted from Sports Concussion Parent Measure (Glang, 2012) and Concussions in the Classroom (Nationwide Children’s Hospital, 2012)
Concussion Questionnaire 2: By completing this questionnaire you are consenting to participate in a research study on a school-based concussion training. This questionnaire is confidential and will be locked in a filing cabinet after completion. Once data has been entered, the questionnaire will be shredded. Please fill out the questionnaire to the best of you knowledge. Thank you!

1. Please indicate your role in the school:
   ___Teacher
   ___Nurse
   ___School Counselor
   ___School Psychologist
   ___Paraprofessional
   ___Occupational Therapist
   ___Speech and Language Pathologist
   ___Administrator
   ___Athletic Trainer
   ___Athletic Coach
   ___Other; Please Indicate: ____________________________

2. Highest level of education:
   ___High School Diploma
   ___Associates Degree
   ___Bachelor’s Degree
   ___Master’s Degree
   ___Doctoral Degree

3. In what educational level are you primarily involved in?
   ___Preschool
   ___Elementary School (Kindergarten – 5th Grade)
   ___Middle School (6th Grade – 8th Grade)
   ___High School (9th Grade- 12th Grade)

4. Areas of certification(s)/licenses(s):
   ___General Education
   ___Special Education
   ___Other; please indicate: ___________________________________(i.e., administrative, school psychology)

5. Gender
   ___Male
   ___Female

6. Have you had any prior concussion training?
   ___Yes
   ___No
Please briefly describe this training: ____________________________________________
__________________________________________________________________

7. Have you ever been to a presentation or seminar on managing a concussion in the academic setting?
   ____Yes; Title of Presentation/Seminar & Date ____________________________
   ____No

8. Do you have previous experience in managing a concussion in the academic setting?
   ____Yes, please explain: ____________________________________________
   ____No

9. Have you personally or anyone close to you ever sustained a concussion?
   ____Yes
   ____No

10. Which of the following are signs and symptoms of concussion? Check all that apply.
    ____Headache or pressure in your head
    ____Double or fuzzy vision
    ____Nosebleed
    ____Problems with balance
    ____Dizziness
    ____Sharp burning pain in neck and shoulders
    ____Problems remembering things
    ____Difficulty concentrating
    ____A sluggish or foggy feeling
    ____Black eye
    ____Sensitivity to light or noise
    ____Nausea
    ____Sleep problems
    ____Chest pain
    ____Moodiness
    ____Shortness of breath

11. Regarding concussions, which statements are true? Check all that apply.
    ____A concussion can be diagnosed by a CAT 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 performance in school
    ____A concussion is an invisible injury
    ____A concussion will usually heal on its own with rest

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12. What things are likely to make concussion symptoms worse? Check **all** that apply.
   ___ Sleeping more than usual
   ___ Stretching
   ___ Surfing the internet
   ___ Schoolwork

13. True/False: Two students in your class 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 recover at same rate.
   ___ True
   ___ False
   ___ I don’t know

14. A student brings you a note that diagnoses him with a concussion. He complains of a headache, dizziness, and trouble remembering things. Regarding school attendance, which of the following are appropriate courses of action? Check **one** answer.
   ___ He should be absent from school until his headaches resolve
   ___ He may attend school regardless of symptoms so he doesn’t fall behind in his work
   ___ He may come to school long enough to take any scheduled tests
   ___ He may attempt to attend school and go home if his symptoms continue to worsen during the day

15. A student with a concussion is in your class. What are some common signs that class work is becoming more difficult for the student? Check **all** that apply.
   ___ Increased forgetfulness
   ___ Decreased sadness
   ___ Impulsive behavior during class
   ___ Uncontrollable laughter

16. A student with a concussion complains of being easily distracted from her work. What accommodations would you use to help her overcome this problem? Check **all** that apply.
   ___ Move her seat to the front of the classroom
   ___ Allow her to wear sunglasses
   ___ Allow her to use fact sheets during tests
   ___ Break assignments down into small chunks

17. A concussed student complains of being sensitive to light while in class. What accommodations would you use to help her overcome this problem? Check **all** that apply.
   ___ Move her seat to the front of the classroom
   ___ Allow her to wear sunglasses
   ___ Allow her to use fact sheets during tests
18. A concussed student complains of memory problems. What accommodations would you use to help him overcome this problem? Check all that apply.
   ___Move his seat to the front of the classroom
   ___Allow him to wear sunglasses
   ___Allow him to use fact sheets during tests
   ___Provide class notes to student or allow student to use tape recorder

19. True/False: A concussion only occurs when a student looses consciousness.
   ___True
   ___False
   ___I don’t know

20. True/False: You have to be hit on the head to have a concussion.
   ___True
   ___False
   ___I don’t know

21. Anna tripped on the field during physical education and bumped her head on a sprinkler head. The teacher tells you that she would like Anna to be checked out by a health care professional if she shows any signs of a concussion over the next few days. The next morning Anna comes to school and is tired, moody, and complains about the noise level in the classroom. Otherwise, she seems fine. True/False: You should take Anna to get checked out by a healthcare professional.
   ___True
   ___False
   ___I don’t know

22. Holden was outside for recess with his second grade class. They were running around, climbing on the monkey bars, and swinging. As Holden and his friends were playing tag, Holden ran into a pole on the playground and bumped his head. When he returned to class he was moody, and complained of a headache, so he put his head down on the desk instead of reading and completing his worksheet. What should the teacher do? Check all that apply.
   ___Ask Holden to sit up and complete his worksheet
   ___Ask Holden to go see the school nurse
   ___Notify the school psychologist
   ___Allow Holden to sleep at his desk

23. Was this school-based concussion training beneficial?
   ___Yes
   ___Somewhat
   ___No
Additional comments:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Thank you for taking the time to complete this questionnaire!

This questionnaire was adapted from *Sports Concussion Parent Measure* (Glang, 2012) and *Concussions in the Classroom* (Nationwide Children’s Hospital, 2012)
Concussion Questionnaire 3: By completing this questionnaire you are consenting to participate in a research study on a school-based concussion training. This questionnaire is confidential and will be locked in a filing cabinet after completion. Once data has been entered, the questionnaire will be shredded. Please fill out the questionnaire to the best of your knowledge. Thank you!

1. Please indicate your role in the school:
   ____ Teacher
   ____ Nurse
   ____ School Counselor
   ____ School Psychologist
   ____ Paraprofessional
   ____ Occupational Therapist
   ____ Speech and Language Pathologist
   ____ Administrator
   ____ Athletic Trainer
   ____ Athletic Coach
   ____ Other; Please Indicate: ____________________________

2. Highest level of education:
   ____ High School Diploma
   ____ Associates Degree
   ____ Bachelor’s Degree
   ____ Master’s Degree
   ____ Doctoral Degree

3. In what educational level are you primarily involved in?
   ____ Preschool
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   ____ High School (9th Grade- 12th Grade)

4. Areas of certification(s)/licenses(s):
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   ____ Special Education
   ____ Other; please indicate: _________________________________ (i.e., administrative, school psychology)

5. Gender
   ____ Male
   ____ Female

6. Have you had any prior concussion training?
   ____ Yes
   ____ No
Please briefly describe this training:___________________________________________________________
__________________________________________________________________

7. Have you ever been to a presentation or seminar on managing a concussion in the academic setting?
   ___Yes; Title of Presentation/Seminar & Date_______________________________________________
   ___No

8. Do you have previous experience in managing a concussion in the academic setting?
   ___Yes, please
   explain:_______________________________________________________________________________
   ___No

9. Have you personally or anyone close to you ever sustained a concussion?
   ___Yes
   ___No

10. Which of the following are signs and symptoms of concussion? Check all that apply.
    ___Headache or pressure in your head
    ___Double or fuzzy vision
    ___Nosebleed
    ___Problems with balance
    ___Dizziness
    ___Sharp burning pain in neck and shoulders
    ___Problems remembering things
    ___Difficulty concentrating
    ___A sluggish or foggy feeling
    ___Black eye
    ___Sensitivity to light or noise
    ___Nausea
    ___Sleep problems
    ___Chest pain
    ___Moodiness
    ___Shortness of breath

11. Regarding concussions, which statements are true? Check all that apply.
    ___A concussion can be diagnosed by a CAT 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 performance in school
    ___A concussion is an invisible injury
    ___A concussion will usually heal on its own with rest
12. What things are likely to make concussion symptoms worse? Check all that apply.
   ___Sleeping more than usual
   ___Stretching
   ___Surfing the internet
   ___Schoolwork

13. True/False: Two students in your class 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 recover at same rate.
   ___True
   ___False
   ___I don’t know

14. A student brings you a note that diagnoses him with a concussion. He complains of a headache, dizziness, and trouble remembering things. Regarding school attendance, which of the following are appropriate courses of action? Check one answer.
   ___He should be absent from school until his headaches resolve
   ___He may attend school regardless of symptoms so he doesn’t fall behind in his work
   ___He may come to school long enough to take any scheduled tests
   ___He may attempt to attend school and go home if his symptoms continue to worsen during the day

15. A student with a concussion is in your class. What are some common signs that class work is becoming more difficult for the student? Check all that apply.
   ___Increased forgetfulness
   ___Decreased sadness
   ___Impulsive behavior during class
   ___Uncontrollable laughter

16. A student with a concussion complains of being easily distracted from her work. What accommodations would you use to help her overcome this problem? Check all that apply.
   ___Move her seat to the front of the classroom
   ___Allow her to wear sunglasses
   ___Allow her to use fact sheets during tests
   ___Break assignments down into small chunks

17. A concussed student complains of being sensitive to light while in class. What accommodations would you use to help her overcome this problem? Check all that apply.
   ___Move her seat to the front of the classroom
   ___Allow her to wear sunglasses
   ___Allow her to use fact sheets during tests
18. A concussed student complains of memory problems. What accommodations would you use to help him overcome this problem? Check all that apply.
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___Allow him to wear sunglasses
___Allow him to use fact sheets during tests
___Provide class notes to student or allow student to use tape recorder

19. True/False: A concussion only occurs when a student loses consciousness.
___True
___False
___I don’t know

20. True/False: You have to be hit on the head to have a concussion.
___True
___False
___I don’t know

21. Anna tripped on the field during physical education and bumped her head on a sprinkler head. The teacher tells you that she would like Anna to be checked out by a health care professional if she shows any signs of a concussion over the next few days. The next morning Anna comes to school and is tired, moody, and complains about the noise level in the classroom. Otherwise, she seems fine. True/False: You should take Anna to get checked out by a healthcare professional.
___True
___False
___I don’t know

22. Holden was outside for recess with his second grade class. They were running around, climbing on the monkey bars, and swinging. As Holden and his friends were playing tag, Holden ran into a pole on the playground and bumped his head. When he returned to class he was moody, and complained of a headache, so he put his head down on the desk instead of reading and completing his worksheet. What should the teacher do? Check all that apply.
___Ask Holden to sit up and complete his worksheet
___Ask Holden to go see the school nurse
___Notify the school psychologist
___Allow Holden to sleep at his desk

23. Was the school-based concussion training in August beneficial for your practice so far this year?
___Yes
___Somewhat
___No
24. How many students have you had so far this year that has sustained a concussion?
__________________________________________________________________

25. Please explain/ describe your experience with students that have sustained a concussion this school year. How did you service/accommodate these students while they were symptomatic?
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

26. Did you receive and read the accommodations/signs/symptoms/iphone app/concussion tips through MailChimp from Jenna Sandlund? 
___Yes 
___No

27. If you received and read the MailChimp emails, did you find them beneficial? 
___Yes 
___Somewhat 
___No

Thank you for taking the time to complete this questionnaire!

This questionnaire was adapted from Sports Concussion Parent Measure (Glang, 2012) and Concussions in the Classroom (Nationwide Children’s Hospital, 2012)
APPENDIX C

PROGRESS MONITORING

Progress Monitoring Student’s Concussion Signs and Symptoms

<table>
<thead>
<tr>
<th>Student Name: ______________________________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you observe, or a student reports any of these signs and/or</td>
</tr>
<tr>
<td>symptoms ask them on a scale of 1-10 the intensity: 1 not being</td>
</tr>
<tr>
<td>intense and 10 being very intense.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME OF RECORDER</td>
</tr>
<tr>
<td>OBSERVED SIGNS</td>
</tr>
<tr>
<td>Repeats questions</td>
</tr>
<tr>
<td>Answers questions slowly</td>
</tr>
<tr>
<td>Can’t recall events <em>prior the hit, bump, or fall</em></td>
</tr>
<tr>
<td>Can’t recall events <em>after the hit, bump, or fall</em></td>
</tr>
<tr>
<td>Shows behavior or personality changes</td>
</tr>
<tr>
<td>Forgets class schedule or assignments</td>
</tr>
<tr>
<td>PHYSICAL SYMPTOMS</td>
</tr>
<tr>
<td>Headache or &quot;pressure&quot; in head</td>
</tr>
<tr>
<td>Nausea or vomiting</td>
</tr>
<tr>
<td>Balance problems or dizziness</td>
</tr>
<tr>
<td>Symptom</td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>Fatigue or feeling tired</td>
</tr>
<tr>
<td>Blurry or double vision</td>
</tr>
<tr>
<td>Sensitivity to light</td>
</tr>
<tr>
<td>Sensitivity to noise</td>
</tr>
<tr>
<td>Numbness or tingling</td>
</tr>
<tr>
<td>Does not &quot;feel right&quot;</td>
</tr>
<tr>
<td><strong>COGNITIVE SYMPTOMS</strong></td>
</tr>
<tr>
<td>Difficulty thinking clearly</td>
</tr>
<tr>
<td>Difficulty concentrating</td>
</tr>
<tr>
<td>Difficulty remembering</td>
</tr>
<tr>
<td>Feeling more slowed down</td>
</tr>
<tr>
<td>Feeling sluggish, hazy, foggy, or groggy</td>
</tr>
<tr>
<td><strong>EMOTIONAL SYMPTOMS</strong></td>
</tr>
<tr>
<td>Irritable</td>
</tr>
<tr>
<td>Sad</td>
</tr>
<tr>
<td>More emotional than usual</td>
</tr>
<tr>
<td>Nervous</td>
</tr>
<tr>
<td><strong>TOTAL SIGNS/SYMPTOMS DISPLAYED</strong></td>
</tr>
</tbody>
</table>
Progress Monitoring Student’s Accommodations

<table>
<thead>
<tr>
<th>DATE</th>
</tr>
</thead>
</table>

**NAME OF RECORDER**

**COGNITIVE SIGNS/SYMPTOMS**

**ACCOMMODATIONS**

- Postpone or stagger tests. Avoid doubling up on tests. Provide shortened tests or extend time to take tests.
- Modify assignments and homework. Limit the number of problems, questions or pages to read. Emotional pressure can increase symptoms.
- Modify assignments—Select the most important concepts. Deliver instructions in smaller “chunks.”
- Excuse from (or un-weight) specific tests and assignments. Remove or adjust large projects during the first critical three weeks.
- Allow more time to complete tests.
- Use a reader or recorded books for assignments and testing. A buddy might be used to read assignments aloud.
- Provide written instructions for homework.
- Provide pre-printed class notes or allow other students to share their notes.
- Allow the use of a tape recorder.
- Use a smaller, quieter exam room or use a quiet part of the classroom.
- Move the student to a seat in front of the class. Seat away from windows, doors other distracters.

__Student Name:___________________________________________________

Please check the accommodation(s) you use.
| Allow for a temporary tutor to assist in organizing and planning work. Allow another student to help access school resources. |
| PHYSICAL SIGNS/SYMPTOMS ACCOMMODATIONS |
| Excuse from sports, PE, weight-lifting, cheer, band. |
| Reduce backpack weight by keeping textbooks in the classroom. |
| EMOTIONAL SIGNS/SYMPTOMS ACCOMMODATIONS |
| Allow time to visit the school counselor, nurse or psychologist. |
| Assign a buddy to help talk to the student, listen and calm the student when upset. |
| Make arrangements to provide the student with a quiet supervised place to go to regain composure. |
| SENSITIVE TO LIGHT & NOISE ACCOMMODATIONS |
| Permit sunglasses or caps with visors indoors. |
| Permit ear protectors (not music). |
| Provide a quiet alternative place to eat. Cafeterias are loud and bright. |
| Allow extra hall passing time or allow student to leave early to the next class to avoid hallway chaos. |
| Turn down lights in one area of the classroom. |
| TOTAL ACCOMMODATIONS |
Follow-Up Email 1

What are the signs and symptoms that school personnel need to look for in regards to a mild traumatic brain injury (concussion)?

Thank you for attending the school-based in-service, and for completing the questionnaires; I really appreciate everyone’s participation!

Please be aware of these concussion signs and symptoms as you enter into the 2012-2013 school.

**Signs Observed by Teacher**
- 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)

**Symptoms Reported by Students**
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

~ Have a great week of school ~

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Follow-Up Email 2

Want an efficient way to recognize and respond to concussion? Check out this smart phone app!

Do you have a smartphone? Check out the PAR application "Concussion Recognition & Response: Coach & Parent Version" by Gerard A. Gioia, PhD and Jason Mihalik, PhD.


~ Have a great week of school ~
Follow-Up Email 3

What accommodations should you be implementing for a student that has sustained a concussion; check out Brain 101?

Recommendation if you have student that has sustained a concussion

A student brings you a note that diagnosis him with a concussion. He complains of a headache, dizziness, and trouble remembering things. Regarding school attendance, he may attempt to attend school and go home if his symptoms continue to worsen during the day.

Click here to check out this Brain 101: The Concussion Playbook, “Help Students Succeed” quiz!!

Remember, if you suspect or know of a student that has sustained a concussion, please contact me at jenna.sandlund@k12.oh.us; I would like to consult and help you best service the student while he/she is symptomatic.

~ Have a great week of school ~
Follow-Up Email 4

Accommodations for a student that may be easily distracted after sustaining a concussion.

Easily Distracted: Recommended Accommodation

If a student with a concussion complains of being easily distracted from their work. Implement the accommodations below to help the student overcome the problem.

- Move their seat to the front of the classroom
- Break assignments down into small chunks

Remember, if you suspect or know of a student that has sustained a concussion, please contact me at jenna.sandlund@k12.oh.us; I would like to consult and help you best service the student while he/she is symptomatic.

~ Have a great week of school ~

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Follow-Up Email 5

Accommodations for a student that is sensitive to light after sustaining a concussion.

Sensitive to Light: Recommended Accommodation

If a student that has sustained a concussion complains of being sensitive to light while in class, implement the accommodations below to help the student overcome the problem.

- Allow her to wear sunglasses
- Move student away from or dim lights in room

Remember, if you suspect or know of a student that has sustained a concussion, please contact me at jenna.sandlund@k12.oh.us; I would like to consult and help you best service the student while he/she is symptomatic.

~ Have a great week of school ~

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Follow-Up Email 6

Accommodations for a student that is having memory problems after sustaining a concussion.

Memory Problems: Recommended Accommodation

If a student sustained a concussion complains of memory problems, implement the accommodations below to help the student overcome the problem.

- Allow him to use fact sheets during tests
- Provide class notes to student or allow student to use tape recorder

Remember, if you suspect or know of a student that has sustained a concussion, please contact me at jenna.sandlund@k12.oh.us; I would like to consult and help you best service the student while he/she is symptomatic.

~ Have a great week of school ~
Follow-Up Email 7

Who should you contact when a student has sustained a concussion?

Tip: Contact School Nurse and School Psychologist Regarding Concussions

If a student has sustained a concussion in or out of school, please contact your school nurse and the intern school psychologist (Jenna Sandlund). The nurses and I can collaborate and help the student to get the appropriate accommodations while he/she is symptomatic.

~ Have a great day ~

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Did you hear about House Bill 143? Check out the linked articles here!

Ohio House Bill 143

Check out the Ohio House Bill 143 regarding heading injuries at the links below!

http://www.lsc.state.oh.us/analyses129/h0143-i-129.pdf


*Remember, if you suspect or know of a student that has sustained a concussion, please contact me at jenna.sandlund@k12.oh.us; I would like to consult and help you best service the student while he/she is symptomatic.*

~ Have a great week of school ~

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