

## Return to Learn after a Concussion: A Guide for Teachers and School Professionals

With the increasing prevalence of concussions, specific protocols for returning a student to learning after a concussion is essential. Because students typically appear well physically after a concussion, educators, school administrators, and peers may not fully appreciate the extent of symptoms and deficits experienced by a student with a concussion. The lack of outward physical symptoms of illness may make it difficult for school officials to recognize the need for accommodations for a student with a concussion (1).

### What is a concussion?

A concussion is a type of brain injury resulting from a bump, blow, or jolt to the head that causes the head and brain to move rapidly back and forth. A direct blow to the head is not required to cause a concussion; this type of injury can result from a hit to the body that transmits force to the head. The sudden, forceful movement can cause the brain to bounce around or twist in the skull, stretching or damaging the brain cells and causing chemical changes in the brain. Concussions affect people differently. Most students experience symptoms lasting for a few days or weeks. With a more serious concussion, symptoms may last months or even longer (2,17). Additionally, research has suggested age plays a role in recovery. Younger students tend to experience more prolonged symptoms than older students. Thus, it is important not just for high schools but also for elementary and middle schools to have return-to-learn protocols that provide academic staff with guidance about how to provide appropriate classroom and learning plan accommodations for students with concussions (16,18).

Though a concussion may seem to be an 'invisible injury', a concussion can affect a student in many different ways: physically, cognitively, emotionally and with sleep.

### Concussion Symptoms

| Physical             | Cognitive                | Emotional                 | Sleep                    |
|----------------------|--------------------------|---------------------------|--------------------------|
| Headache             | Feeling mentally foggy   | Irritability              | Trouble falling asleep   |
| Dizziness            | Feeling slowed down      | Sadness                   | Sleeping more than usual |
| Balance difficulties | Difficulty concentrating | Nervousness               | Sleeping less than usual |
| Nausea/vomiting      | Difficulty remembering   | More emotional than usual | Drowsy                   |
| Fatigue              | Difficulty focusing      |                           | Altered sleep schedule   |
| Sensitivity to light |                          |                           |                          |
| Sensitivity to noise |                          |                           |                          |
| Visual Changes       |                          |                           |                          |

These symptoms can significantly impact both learning and schoolwork. Physical symptoms such as headache, dizziness, and visual changes, may interfere with the student's ability to focus and concentrate. Cognitive symptoms may impact the ability of the student to learn, memorize and process information as well as keep track of assignments and tests. Struggling with schoolwork may actually cause symptoms to increase. Students may experience feelings of frustration, nervousness and/or irritability both as a direct result of concussion and due to resulting academic difficulties. Disturbances in sleep patterns often result in fatigue and drowsiness during the day. Inadequate sleep can increase the magnitude of symptoms the student may experience (5).

Knowledge about the potential effects of concussions on learning, and appropriate management of the return-to-learn process, is critical for helping students recover from a concussion. Concussions are both a medical and educational concern. Assessing problems with learning and school performance, and then making appropriate and necessary changes to a student's learning plan is a collaborative effort between the student's physician and the academic leaders at his/her school (4).

It is important to note, recovery from a concussion is an individualized process. Caution must be taken not to compare students suffering from concussions. Because every brain and every student are different, every concussion is different. Some students may not miss any school and may need few accommodations, similar to someone suffering from a minor illness. Others may endure months of symptoms that can significantly impact academic performance and require extensive accommodations at school (3,4). The severity of a concussion is measured by how long the symptoms last. Thus, it is not possible to know how severe a concussion is until the student is fully recovered (1,11).

A student's best chance for a full recovery from a concussion depends on timely implementation of two critical components: cognitive rest and physical rest. There is increasing evidence that using a concussed brain to learn may worsen concussion symptoms and prolong recovery. The goal during concussion recovery is to avoid overexerting the brain to the level of triggering or worsening symptoms. Determining the appropriate balance between the amount of cognitive exertion and rest is the hallmark of the management plan and crucial for facilitating recovery (1,2,3). This balance is different for each concussion. Therefore, an individualized plan for accommodations is required, and should be frequently monitored and updated to allow for the student to progress academically as concussion symptoms improve (12).

#### **How can a concussion affect school performance? (18)**

- Slower processing speed
- Lapses in short term memory
- Reduced/impaired concentration
- Slower to learn new concepts
- Shorter attention span

- More difficulty planning, organizing and completing assignments
- Slower reading
- Difficulty with reading comprehension

### **Elementary School- (15)**

Compared to older students, elementary aged children are more likely to complain of physical problems or misbehave in response to cognitive overload, fatigue and other concussion symptoms.

### **Middle School-**

Peer relations are very important to middle school students. They can be extremely sensitive to being different. Middle school students may try to minimize symptoms so as not to stand out. At this level, executive functioning such as goal setting and planning ahead is in greater demand. Therefore, organizational problems may have a greater impact on academic performance.

### **High School-**

High school students are often very busy. Many students are enrolled in advanced classes and have one or more extra-curricular activities. Therefore, prioritizing activities and reducing overall demands becomes especially important with the high school student in order to reduce concussion symptoms.

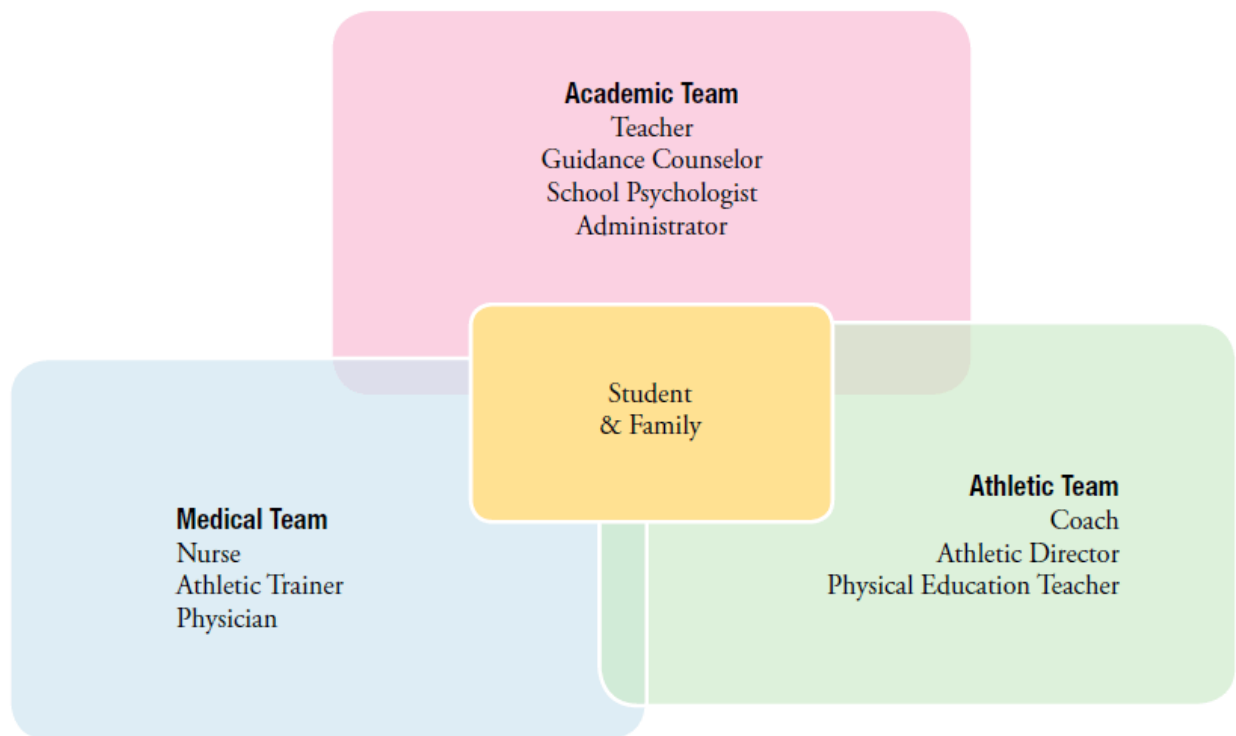
### **When is a student ready to return to school after a concussion?**

A student with a concussion should be evaluated by a licensed healthcare professional who has experience managing concussions for guidance about when it's safe to return to school as well as recommended appropriate levels of cognitive and physical activity throughout the recovery process.

Providing appropriate support for a student returning to school after a concussion requires a collaborative team approach:

**Examples of a Multidisciplinary Team to Facilitate “Return to Learning” (1,4)**

|                               |                                                                                                                                                                           |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Family Team                   | Student, parents, guardians, grandparents, peers, teammates, family and friends                                                                                           |
| Medical Team                  | Emergency department, primary care provider, concussion specialist, clinical psychologist, neuropsychologist, athletic trainer team and/or school physician, school nurse |
| School Academic Team          | Teacher, school counselor, school psychologist, social worker, school nurse, school administrator,                                                                        |
| School Physical Activity Team | School nurse, athletic trainer, coach, physical education teacher, playground/recess supervisor,                                                                          |



It is important for the school leaders to identify a school staff member on the concussion management team who will function as a case manager or concussion management leader, such as a school nurse, athletic trainer, school counselor or other identified school professional. This person will have the role of advocating for the student's needs and serve as the primary point of contact for the student, family, and all members of the concussion management team (1,2). The case manager is responsible for ensuring all are informed and understand how to implement the student's accommodations.

### **Return-to-Learn Framework: (5,3)**

#### **Points of Emphasis**

- To initiate the Return-to-Learn protocol, the student must be evaluated by a licensed healthcare professional and documentation must be provided to the school.
- The protocol emphasizes allowing the student to participate in school in a modified fashion so as not to worsen symptoms. Determining “how much is too much” may be a trial and error process.
- The student should be granted adequate time to complete missed academic work based on the amount of time needed for complete recovery.
- The student should report to the case manager **daily** in order to monitor symptoms and assess how the student is tolerating the accommodations (a symptom checklist is recommended), as well as assess how staff are implementing the modified learning plan.
- As the student's recovery progresses through the outlined phases, teachers should be prepared to apply “mastery learning” criteria within their subject matter. By identifying essential academic work, teachers can facilitate recovery by reducing the student's anxiety levels related to perceived volume of work that will be required once he/she is medically cleared to resume a full academic load.

#### **Phase 1: No School/Complete Cognitive Rest**

- **Symptom Severity:** In this phase, the student may experience high levels of symptoms that at best prohibit the student to benefit from school attendance and may cause symptoms to increase in intensity. During this stage, physical symptoms tend to be the most prominent and may interfere with even basic tasks. Many students are unable to tolerate being in the school environment due to severe headache, dizziness or sensitivity to light or noise.
- **Treatment:** Emphasis on cognitive and physical rest to allow the brain and body to rest as much as possible.
- **Intervention Examples:**
  - No School

- Avoid activities that exacerbate symptoms. Activities that commonly trigger symptoms include reading, video games, computer use, texting, television, and/or loud music.
- Other symptom “triggers” that worsen symptoms should be noted and avoided in the effort to promote healing
- No physical activity- this includes anything that increases the heart rate as this may worsen symptoms
- No tests, quizzes or homework
- Provide students with copies of class notes (teacher or student generated)

## **Phase 2: Part-Time School Attendance with Accommodations:**

- **Symptom Severity:** In this phase, the student’s symptoms have decreased to manageable levels. Symptoms may be exacerbated by certain mental activities that are complex or of long duration. Often students can do cognitive activities but only for very short periods of time (5-15 minutes) so need frequent breaks to rest and “recharge their batteries”.
- **Treatment:** Re-introduction to school. Avoid settings and tasks that trigger or worsen symptoms. In the first few days of returning to school the goal is not to immediately start catching up on the missed work or learn new material. Rather the initial goal is simply to make sure the student can tolerate the school environment without worsening symptoms. This means the first few days often include just sitting in class and listening (no note-taking or reading). Once the student can tolerate this, he/she can try short intervals (5-15 minutes) of cognitive work per class.
- **Intervention Examples:**
  - Part-time school attendance, with focus on the core/essential subjects and/or those which do not trigger symptoms; prioritize what classes should be attended and how often. Examples: (1) half-days, alternating morning and afternoon classes every other day; or (2) attending every other class with rest in the nurse’s office, library or quiet location in between. - Symptoms reported by the student should be addressed with specific accommodations
  - Eliminate busy work or non-essential assignments or classes.
  - 
  - Limit or eliminate “screen time” (computers, phones, tablets, smart boards), reading and other visual stimuli, based on the student’s symptoms.
  - Provide student with copies of class notes (teacher or student generated)
  - No tests or quizzes.
  - Homework load based on symptoms. There should be no due dates on homework assignments. This allows students to work at a pace that does not exacerbate symptoms and reduces their anxiety about completing the assignments. Many students have heightened anxiety during concussion recovery and due dates exacerbate this.

- Allow to leave class 5 minutes early to avoid noisy, crowded hallways between class changes.
- No physical activity including gym/recess or participation in athletics
- If this phase becomes prolonged and/or the student is unable to tolerate the school environment or do any work for even short periods of time, a tutor can be helpful (either in school or at home) to implement oral learning at a pace that does not worsen symptoms. A tutor can also help students organize their work and plan how they will spend their limited time studying (i.e. which assignment should I do first, second, third, etc), as many students are unable to do this basic “executive function” task during concussion recovery.

### **Phase 3: Full-Day Attendance with Accommodations:**

- **Symptom Severity:** In this phase, the student’s symptoms are decreased in both number and severity. They may have intervals during the day when they are symptom-free. Symptoms may still be exacerbated by certain activities.
- **Treatment:** As the student improves, gradually increase demands on the brain by increasing the amount, length of time, and difficulty of academic requirements, as long as this does not worsen symptoms.
- **Intervention Examples:**
  - Continue to prioritize assignments, tests and projects; limit students to one test per day with extra time to complete tests to allow for breaks as needed based on symptom severity
  - Continue to prioritize in-class learning; minimize overall workload
  - Gradually increase amount of homework
  - Reported symptoms should be addressed by specific accommodations; Accommodations are reduced or eliminated as symptoms resolve
  - No physical activity unless specifically prescribed by the student’s physician or health care provider. If the student has not resolved their symptoms after 4-6 weeks, health care providers will often prescribe light aerobic activity at a pace and duration below that which triggers symptoms. This “sub-symptom threshold exercise training” has been shown to facilitate concussion recovery (14). The student can do this at school in place of their regular PE class, by walking, riding a stationary bike, swimming, or jogging. No contact sports are allowed until the student is completely symptom-free with full days at school and no accommodations, and has received written clearance from a licensed health care professional.

### **Phase 4: Full-Day Attendance without Accommodations:**

- **Symptom Severity:** In this phase, the student may report no symptoms or may experience mild symptoms that are intermittent.
- **Treatment:** Accommodations are removed when student can participate fully in academic work at school and at home without triggering symptoms.

- **Intervention Examples:**

- Construct a reasonable step-wise plan to complete missed academic work; an extended period of time is recommended in order to minimize stress
- Physical activities as specified by student's physician (same as phase 3)

**Phase 5: Full School and Extracurricular Involvement:**

- **Symptom Severity:** No symptoms are present. Student is consistently tolerating full school days and typical academic load without triggering any symptoms.
- **Treatment:** No accommodations are needed
- **Interventions:**
  - Before returning to physical education and/or sports, the student should receive written clearance and complete a step-wise return-to-play progression as indicated by the licensed healthcare professional.

**Class/Subject Accommodation Examples:**

**History:**

- Books on Audiotape
- Provide detailed class notes to allow student to listen and not be consumed with note-taking during class
- Oral discussion for learning and oral test-taking preferred to written work

**Language Arts, English & Writing:**

- Books on Audiotape
- Reduce overall amount of written and typed assignments as screens and annotating may be bothersome to the concussed student. Speech-to-text software programs can be helpful for writing papers or annotating.
- Oral discussion for learning and oral test-taking preferred to written work

**Math:**

- Reduce homework assignments to the least amount possible to demonstrate mastery learning concept
- Provide outline of necessary steps to complete problem (concussed students often experience difficulty remembering and may leave out pertinent steps)



- Student should be given extra time to complete in-class assignments and homework
- Oral discussion for learning and oral test-taking preferred to written work

**Science:**

- Books on Audiotape
- Detailed class notes to allow student to listen and not be consumed with note-taking during class
- Hands-on learning may be helpful
- Oral discussion for learning and oral test-taking preferred to written work
- Speech-to-text software programs can be helpful for writing lab reports and assignments.

**Additional Specific Accommodation Examples: (5,15)**

- Extending time on testing and assignments to allow for slower processing speed especially if there is a significant reading demand. Students recovering from concussion have limited endurance and therefore can only attend to a task for short intervals (5-15 min) before triggering symptoms. Symptoms are not just limited to physical symptoms. If there is a lack of comprehension despite 2 or 3 attempts, even without a headache, the student should take a break.
- Providing a quiet room for testing to minimize distraction
- Offering preferential seating (usually in the front of class or away from windows) to minimize distraction and allow better monitoring of the student
- Class information and corresponding assignments should be divided into manageable chunks to minimize cognitive load.
- Reduce light sensitivity by allowing the student to wear sunglasses in class
- Allow breaks every 15 minutes for prolonged reading or screen time
- Allow the student to eat lunch in a quiet location
- Avoid assemblies, pep rallies, athletic events and other events with loud noise and/or bright lights

If concussion symptoms increase, it usually means the student is reaching a point of over-exertion and needs a break. Some students may only need periodic breaks throughout the school day while others may need more frequent breaks depending on the severity of symptoms.

### Follow-Up Interview (3)

Students are encouraged to meet with their case manager regularly to discuss progress, grades and status of make-up work. Additionally, the student's case manager or concussion management leader should conduct an exit interview with the student no earlier than one week after he/she returns to full academic activity.

### Ensuring a Student's Return to Learning is Successful: (4)

- Education of all school staff about the goals of academic concussion management is essential to reduce the likelihood of a child suffering permanent damage to his/her academic record due to a concussion.
- Educate school staff about how concussions affect academic learning. Schools should take steps to ensure their staff understands the institutional or district procedures regarding return-to-learn policy.
- Distribute written responsibilities and expectations to each member of the concussion management team. Taking the time to explain the process to each team member prior to initiating a student's management plan will likely lead to better compliance.
- Emphasize that each team member has an important role and responsibility. **Inadequate participation from one member can derail the whole return-to-learn plan.**

### Privacy

The return-to-learn team should recognize that communication is essential for the success of the management plan. However, they should be aware that a student's medical and academic information is considered private and is protected by the Health Insurance Portability and Accountability Act (HIPAA) (1,8) and the Family Educational Rights and Privacy Act (FERPA) (1,9). The team should have a clear understanding of who is allowed to receive information regarding a student's medical and academic status. Team members should only discuss what is absolutely necessary to manage a student's return-to-learn plan (4). In compliance with requirements of the Illinois School Student Records Act that regulates how schools may share a "school student record" with a non-school employee (19), the student's parent or guardian (or student if s/he is over 18) must complete a Release of Medical Information (ROMI) if they would like the physician to speak with school staff about the student's medical care and provide guidance about how to implement the recommended accommodations. . This release can be signed at the physician's office.

## Documentation

The case manager should take care to document the specifics of the learning plan, noting the dates when changes are made and the student's response in terms of symptoms. He/she should also record any instances where the students, parent, or school staff do not follow the recommended accommodations. This documentation should be kept in a secure file as directed by school policy (4).

Concussion symptoms are unfortunately subjective in nature, and therefore, it can be difficult to know when a student is reporting symptoms accurately. Communication among team members will help identify students who may be exaggerating symptoms. If a concern about the legitimacy of the student's complaints arises, a meeting with all involved parties should be held to discuss the situation and determine the appropriate course of action. In these instances, direct communication between the return-to-learn team and physician is very useful.

## Formal Education Plans:

For students with prolonged symptoms who will require accommodations for several months, a formalized program may be implemented to ensure that the student's specific educational needs are being met by the school (1,7). Parents can work with school leaders to develop a 504 plan or individualized education program (IEP). The process is time intensive and requires extensive documentation, but does provide a legal document that describes the specific educational goals for the student and the accommodations necessary to achieve them. (4). Private schools that do not receive state funding are not legally obligated to abide by these plans.

- **504 Plan:** Students with persistent symptoms and who require assistance to participate fully in school may be candidates for a 504 plan. A 504 plan will describe modifications and/or accommodations necessary to assist a student return to pre-concussion performance levels. For example, it may specify that the student receive environmental adaptations, temporary curriculum modifications and/or behavioral strategies (1,2).
- **Individualized Education Plan (IEP):** Students with certain classifications of disability that adversely impact educational performance may be eligible for an IEP. These students generally require significant help to access the curriculum. This help may include reducing the student's workload, changing the learning method (e.g. working with a tutor), slowing the pace of instruction, or allowing the student to work in an environment other than the inclusive classroom (1,2).

The majority of students with a concussion will not require a 504 or IEP; however, a small percentage of students with chronic cognitive or emotional deficits may require this level of support.



**Example of School Accommodation form provided by a Licensed Healthcare Professional: (10)**

## SCHOOL RECOMMENDATIONS

Patient Name: \_\_\_\_\_

Date of Evaluation: \_\_\_\_\_

Provider's Signature: \_\_\_\_\_

This patient has been diagnosed with a **concussion** and is currently under our care. Please excuse the patient from school today due to a medical appointment. It is suggested that the following recommendations be implemented to avoid increasing concussion symptoms and delaying recovery.

Please allow the following academic recommendations from \_\_\_\_\_ thru \_\_\_\_\_  
 (Please see reverse side for additional information) \_\_\_\_\_ →

### Attendance

- ☐ No school for \_\_\_\_\_ school day(s)
- ☐ Part time attendance for \_\_\_\_\_ school day(s) as tolerated
- ☐ Full school days as tolerated
- ☐ Tutoring homebound/in school as tolerated
- ☐ No school until symptom free or significant decrease in symptoms

### Breaks

- ☐ Allow student to go to the nurse's office if symptoms increase
- ☐ Allow student to go home if symptoms do not subside

### Visual Stimulus

- ☐ Allow student to wear sunglasses in school
- ☐ Pre-printed notes for class material or note taker
- ☐ No smart boards, projectors, computers, TV screens or other bright screen
- ☐ Enlarged font when possible

### Audible Stimulus

- ☐ Allow student to leave class 5 minutes early to avoid noisy hallway
- ☐ Lunch in a quiet place
- ☐ Audible learning (discussions, reading out loud, if possible text to speech programs or Kindle)

### Workload/Multi-Tasking

- ☐ Reduce overall amount of make-up work, class work and homework when possible
- ☐ No homework
- ☐ Limit homework to \_\_\_\_\_ minutes a night
- ☐ Prorate workload when possible

### Testing

- ☐ No testing
- ☐ Extra time to complete tests
- ☐ No more than one test a day
- ☐ Oral testing
- ☐ Open book testing

### Physical Exertion

- ☐ No physical exertion/athletics/gym
- ☐ Begin return to play protocol prior to returning to gym or athletics

### Additional Recommendations

- ☐ Other: \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

### Current Symptom List (the patient is complaining today of)

- |                                          |                                                   |                                                 |                                                   |
|------------------------------------------|---------------------------------------------------|-------------------------------------------------|---------------------------------------------------|
| <input type="checkbox"/> Headache        | <input type="checkbox"/> Difficulty concentrating | <input type="checkbox"/> Sensitivity to light   | <input type="checkbox"/> Trouble falling asleep   |
| <input type="checkbox"/> Visual problems | <input type="checkbox"/> Difficulty remembering   | <input type="checkbox"/> Sensitivity to noise   | <input type="checkbox"/> Drowsiness               |
| <input type="checkbox"/> Dizziness       | <input type="checkbox"/> Feeling slowed down      | <input type="checkbox"/> Feeling more emotional | <input type="checkbox"/> Sleeping less than usual |
| <input type="checkbox"/> Nausea          | <input type="checkbox"/> Feeling mental foggy     | <input type="checkbox"/> Irritability           | <input type="checkbox"/> Sleeping more than usual |
| <input type="checkbox"/> Fatigue         | <input type="checkbox"/> Balance Problems         |                                                 |                                                   |

The patient has been scheduled for a follow-up medical appointment and revision of recommendations on \_\_\_\_\_

## SCHOOL RECOMMENDATIONS

The academic accommodations may help in reducing the cognitive (thinking) load, thereby minimizing post-concussion symptoms and allowing the student to better participate in the academic process during the injury period. Needed accommodations may vary by course. The student and parent are encouraged to discuss and establish accommodations with the school on a class-by-class basis. The student and parent may wish to formalize accommodations through an IEP or 504 Plan if symptoms persist following treatment and less formalized accommodations.

**Testing:** Students with a concussion have increased memory and attention problems. They will not be able to learn as effectively or as quickly as before. High demanding activities like testing can significantly increase symptoms (e.g., headache, fatigue, foggiess, dizziness) which in turn can make testing more difficult.

**Note Taking:** Note taking may be difficult due to impaired multi-tasking abilities and increased symptoms.

**Work Load Reduction:** It takes a concussed student much longer to complete assignments due to increased memory problems and decreased speed of learning. Recovery can be delayed when a student "pushes through" symptoms. Therefore, it is recommended that "thinking" or cognitive load be reduced, just as physical exertion is reduced. Examples of how to shorten work might be to reduce the length of essays, have the student do every other problem in a homework assignment, or highlight key concept areas for testing while eliminating testing on less important topics. Doing school work in 15 minute intervals, followed by a rest break, is often needed.

**Breaks:** Take breaks as needed to control symptom levels. For example, if the headache worsens during class, the student should put his or her head on the desk to rest. For worse symptoms, he/she may need to go to the nurse's office to rest prior to returning to class.

**Extra Time:** Students may experience severe symptoms some days or nights and not others. With increased symptoms, students are advised to rest, and therefore may need to turn assignments in late on occasion.

**School Environment:** The school setting has a variety of constant visual and audible stimulus. Loud and noisy classrooms, hallways, auditoriums and cafeterias can provoke symptoms in concussed students. Bright halogen lights, smart boards and projectors are visual stimulus that often exacerbates symptoms. Modifications of this stimulus may be needed during the student's school day. Allowing students to leave class five minutes early to avoid loud hallways or eat in a quiet place during lunch, allowing pre-printed notes or use of sunglasses are options.

**Physical Exertion:** At no point shall a student return to contact or collision activities while currently experiencing symptoms. Return to play protocols must be completed with a certified athletic trainer or other medical provider experienced with return to play protocols. Non-contact aerobic activities will be prescribed by the medical provider as tolerated.

### Additional Resources:

|                                                      |                                                                                  |
|------------------------------------------------------|----------------------------------------------------------------------------------|
| Ann & Robert H. Lurie Children's Hospital of Chicago | <a href="http://www.luriechildrens.org/sports">www.luriechildrens.org/sports</a> |
| Centers for Disease Control (CDC)                    | <a href="http://www.cdc.gov/concussion">www.cdc.gov/concussion</a>               |
| American Academy of Pediatrics (AAP)                 | <a href="http://www.aap.org">www.aap.org</a>                                     |
| Safe Kids USA                                        | <a href="http://www.safekids.org">www.safekids.org</a>                           |

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