Many students who have sustained concussions return to school requiring academic and environmental adjustments while the brain heals.

School personnel are often not trained on the effects of concussions or ways to help these students transition back into learning.
The Plan

Implement *Return to Learn* strategies and a *Concussion Team Model* for Ohio schools to improve concussion recognition and response.
**Objectives of the Training**

<table>
<thead>
<tr>
<th>Part 1</th>
<th>Part 2</th>
<th>Part 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information on how concussions can affect students’ learning, health, and social–emotional functioning</td>
<td>A suggested concussion team model that involves a designated leader, as well as collaboration among the family, medical personnel, and school team</td>
<td>Strategies for “return to learn,” including tools for assessment, symptom-based adjustments to the learning environment, and progress-monitoring</td>
</tr>
</tbody>
</table>

**TO PROVIDE...**
PART I:
Concussion Effects
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 and a constellation of symptoms.

Accurate prevalence estimates are difficult because many do not seek medical attention.

Concussions are not visible on standard CT scans or MRIs.

Nearly 33% of concussions in athletes still go unreported (Meehan, Mannix, O’Brien, & Collins, 2013).

Concussions are not only experienced by athletes. Youth ages 5-18 are at increased risk of experiencing a TBI and prolonged recovery (Gilchrist, Thomas, Xu, McGuire, & Corondo).
When one sustains a concussion, neurochemical changes take place in the brain. Potassium flows out of the brain cells, while calcium flows into the brain cells. This results in inefficiency of brain cells to properly deliver much-needed nutrients (especially glucose) to the brain. These molecular changes hinder a person’s ability to engage in many physical or mental activities.

(Giza & Hovda, 2001)
Effects of a Concussion: Signs

- Appears dazed or stunned
- Is confused about events
- Answers questions slowly
- Repeats questions
- Can’t recall events prior to and/or after the hit, bump, or fall
- May or may not lose consciousness (briefly)
- Shows behavior or personality changes
- Forgets class schedule or assignments

Danger Signs

The student should be seen in an emergency department right away if s/he has:

- One pupil larger than the other
- Drowsiness and cannot be awakened
- A headache that gets rapidly worse
- Weakness, numbness, or decreased coordination
- Repeated vomiting or nausea
- Slurred speech
- Convulsions or seizures
- Difficulty recognizing people or places
- Increasing confusion, restlessness, or agitation
- Unusual behavior
- Loss of consciousness (even briefly)

## Effects of a Concussion: Symptoms

<table>
<thead>
<tr>
<th>Cognitive (thinking)</th>
<th>Physical</th>
<th>Emotional/Mood</th>
<th>Sleep</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Feeling slowed down</td>
<td>- Headache</td>
<td>- Irritability</td>
<td>- Sleeping more than usual</td>
</tr>
<tr>
<td>- Difficulty concentrating</td>
<td>- Fuzzy or blurry vision</td>
<td>- Sadness</td>
<td>- Sleeping less than usual</td>
</tr>
<tr>
<td>- Difficulty remembering new information</td>
<td>- Nausea or vomiting (early on)</td>
<td>- More emotional</td>
<td>- Trouble falling asleep</td>
</tr>
<tr>
<td></td>
<td>- Sensitivity to noise or light</td>
<td>- Nervousness or anxiety</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Balance problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Feeling tired/having no energy</td>
<td></td>
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</tbody>
</table>

Effects of a Concussion

Symptoms flare when the brain is asked to do more than it can tolerate (trying to “tough it out” can make symptoms worse)

“Treatment” is physical and cognitive rest

More on how to achieve this after we discuss how to structure your School-Based Concussion Management Team...
Recovery from Concussion: How Long Does it Take?

Most recover in 3-4 weeks

Student should receive adjustments until symptoms have resolved

There is a need for balance between the need for physical and cognitive rest and keeping up with schoolwork

Adapted from: Collins et al., 2006, Neurosurgery
Risk Factors for Prolonged Recovery

Constellations of symptoms and recovery speeds are unique.

Some factors affecting recovery include:

Developmental history
Learning disabilities, ADHD, developmental disorders...

History of migraines/headaches

Psychiatric history
Anxiety, depression, sleep disorders, other psychological disorders..

Concussion history
Once a student sustains a concussion, s/he may be at 3-6x higher risk for sustaining another concussion, sometimes with less force and often with more difficult recovery

(Guskiewicz, Weaver, Padua, & Garrett, 2000)
Because every concussion and every student is different, symptom clusters and recovery rates will vary.

Students receiving academic adjustments do so because symptoms are present. Students who are symptomatic should not be resuming physical activity.
PART 2: Concussion Team Model
A concussion team ensures every student who sustains a concussion is monitored for return to activity.

When a health issue affects a student’s learning, school teams must communicate effectively with one another, with medical personnel, and with the family.

Listen, validate parents’ feelings, avoid defensiveness, recognize fear and frustration, focus on solutions, work together toward common goals.
School-based Concussion Team

Academic Team Members
- Teacher
- School Psychologist
- School Counselor
- Administrator
- Speech Language Pathologist

Medical Team Members
- School Nurse
- Athletic Trainer
- Physician

Student & Family

Athletic Team Members
- Coach
- Athletic Director
- Physical Education Teacher

## Roles and Responsibilities: Family

<table>
<thead>
<tr>
<th>TEAM MEMBER</th>
<th>RESPONSIBILITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>To clearly and honestly communicate their symptoms, academic difficulties and feelings</td>
</tr>
<tr>
<td>Parent/Guardian</td>
<td>To carry out any assigned duties by other team members to the best of their ability</td>
</tr>
<tr>
<td></td>
<td>To submit all physician notes and instructions to the school in a timely manner</td>
</tr>
<tr>
<td></td>
<td>To help the student maintain compliance with any medical and/or academic recommendations given to promote recovery</td>
</tr>
</tbody>
</table>
### Roles and Responsibilities: Academic Team Members

<table>
<thead>
<tr>
<th>TEAM MEMBER</th>
<th>RESPONSIBILITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
<td>To help the student get the best education possible given the circumstances and to follow recommended academic adjustments</td>
</tr>
<tr>
<td>School Counselor</td>
<td>To help create (as needed) and disseminate academic adjustments to the student’s teachers</td>
</tr>
<tr>
<td>School Psychologist</td>
<td>To be the consultant for prolonged or complicated cases where long-term adjustments or more extensive assessment and educational plans may be necessary</td>
</tr>
<tr>
<td>Administrator</td>
<td>To direct and oversee the concussion team plan and trouble shoot problems</td>
</tr>
<tr>
<td></td>
<td>To help create a change in the culture of the school regarding the implementation of programs and policies</td>
</tr>
</tbody>
</table>
Roles and Responsibilities: Medical Team Members

**TEAM MEMBER**

- **Athletic Trainer**  
  (also athletic team member)

- **Physician**

- **School Nurse**

**RESPONSIBILITIES**

- To evaluate possible injuries and make referrals for student-athletes
- To monitor symptoms and help coordinate and supervise a student-athlete’s safe return to play
- To communicate with the school about the student’s progress
- To evaluate, diagnose and manage the student’s injury, and to direct medical and academic recommendations
- To monitor in-school symptoms and health status changes
- To help determine if it is appropriate for the student to be in school or if the student needs any health-related adjustments
Roles and Responsibilities: Athletic Team Members

**TEAM MEMBER**

- **Athletic Director**
- **Coach/Physical Education Director**

**RESPONSIBILITIES**

- To oversee the athletic department’s concussion team plan, including but not limited to: equipment management, policies, coach/athlete/parent education, etc.
- To recognize concussion symptoms and remove a potentially injured player from practice or competition.
- To receive communication from health care providers, parent/guardian and school about readiness to return to play.
- To communicate with the school about the student’s progress.
Concussion Team Leader

- The concussion team leader (CTL) is the “central communicator” for all team members.
  - Oversees the return-to-learn process
  - Get Release of Medical Information (ROI) signed for two-way communication between the school and healthcare provider
  - Must be organized, a good communicator, willing to learn, and in the school building most days
    - Suggestion: same person as the 504 or IAT coordinator

Depending on roles and responsibilities, it might be the school psychologist, school counselor, school nurse, administrator, or someone else.
Concussion Team Process

Step 1: Concussion Reported
Injury reported to CTL as soon as possible. CTL should review cumulative file to see if Concussion folder exists from previous injury.

Step 2: Contact student & family
Meet with student upon student’s return to school. CTL also meet with parents to discuss academic plan.

Step 3: Assess medical needs
Has student seen physician or athletic trainer? Documentation? CTL get signed medical release form.

Step 4: Assess academic needs
Specify general adjustments supplied by health care provider (if applicable).

Step 5: Distribute adjustments
Contact family with relevant updates on student’s needs and plan. Notify team about student and distribute Symptom Log PM.

Step 6: Determine Re-assessment
Gain feedback from each team.

CTL should notify all teachers/attendance about classroom adjustments. CTL should distribute staff notification letter, Academic Adjustment Plan, and Daily Symptom Log – Progress Monitoring (PM), to teachers.
- Symptom Log – PM to be completed at least weekly by teachers and returned to CTL
- Encourage teachers to report signs and symptoms that may be observed in class to the CTL
- Plan to re-evaluate plan if student is having daily moderate-severe symptoms at school the first week.

Assess symptoms and make attendance decision. CTL start folder.

Assess academic needs and Create adjustments. CTL add student to Case Tracking Form.

Update athletic trainer and coach (if applicable)

Decide when to re-assess medical and academic needs.

Adapted from: Nationwide Children’s Hospital. A School Administrator’s Guide to Academic Concussion Management
STEP 1: Concussion is reported to CTL as soon as possible.

- At the beginning of school year, CTL should be identified to teachers, coaches, parents and administrators so the responsible adults know who to report injuries to.

- Anyone in the school community who suspects a concussion should contact the CTL right away so the student can be referred for proper evaluation.

- CTL should review cumulative student file to see if concussion file exists from previous injury.
STEP 2: Contact student and family and meet with the student upon return to school.

• CTL explains his/her role & provides contact information

• CTL explains the steps in the management process

• CTL explains the responsibilities of the student & family
  - Honest communication
  - Follow recommendations
  - Forward physician notes & other relevant documentation

• Explaining responsibilities helps to ensure good communication with, and compliance from, the student and family
STEP 3: Assess medical needs

• The CTL or another designated concussion team member will determine if the student has been evaluated by an athletic trainer or physician, and if the student has documentation from the provider concerning school/activity restrictions and adjustments.

• If no recommendations are available, the CTL or team member should assess symptoms to determine if the student will benefit from being in school or if attendance is likely to be counterproductive.

**See Symptom Log**

• i. If symptoms are significant or severe, the student may need to be sent home.

• ii. If symptoms are manageable and not becoming significantly worse by attending school, the student may continue to step 4.

• Document as required. CTL get signed Medical Release form from Parent/Guardian for communication between school and physician, if needed. CTL start folder for student.
STEP 4: Assess academic needs

- If there are academic recommendations from the health care provider, the CTL or designated team member should specify those general recommendations.

- If no recommendations are available, the CTL or designated team member should assess the student’s academic needs. See form titled Academic Adjustments: Concussion.

- Document as required. CTL add student to Case Tracking Form.
STEP 5: Distribute adjustments to teachers in writing. Contact family (and if applicable, coach and athletic trainer) with relevant academic/medical updates and plan, as needed. Document as required.

• Notify team about student and distribute Symptom Log – Progress Monitoring.
STEP 6: Identify appropriate timeframe for re-assessment of needs, and using feedback from teams, re-start process at step 3 or 4.

Re-assess medical and/or academic needs when...

• New physician documentation arrives dictating a new course of action

• Symptoms have changed (and therefore the prior assessment needs to be altered)

• Symptoms have resolved and are no longer a barrier to school participation or attendance

• Teachers or parents identify problems in current plan that are not being adequately addressed

• Once the re-assessment is complete, document as required, and return to step 5 (notify relevant parties of any changes to the plan), then continue to step 6 (identify appropriate timeframe for re-assessment).

Adapted from: Nationwide Children’s Hospital. A School Administrator’s Guide to Academic Concussion Management
A Note on Student Privacy

Information on a student’s health is protected by HIPAA
(hhs.gov/ocr/privacy/hipaa/understanding/index.html)

Information on a student’s school records is protected by FERPA (www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html)

Remind staff members to only discuss what is necessary to manage the situation and that they understand how to appropriately communicate what is involved in this plan in a way that maintains student privacy.
Gaining support from the school community

Keep it simple, introducing the key concepts first and gaining support from responsive faculty members.

Create opportunities for meaningful discussion

Promote feedback. How can the initiative be improved?

Provide training and ongoing professional development in a way that is easily accessible.

*Be patient: Systems change takes time.*
PART 3: Return to School
Initially, it is important to rest the brain & get good sleep.

Limit physical, emotional, or cognitive activities to a level that is tolerable and does not exacerbate or cause re-emergence of symptoms.

Exertion (and rest) falls along a continuum:

- No activity/full rest
- Full activity/no rest
Cognitive Rest

If student stays home, s/he must avoid extensive computer/tablet use, texting, video games, television, music, loud music, and music via headphones.

These activities make the brain work harder to process information and can exacerbate symptoms, thereby slowing recovery.
Physical Rest

No participation in any physical activity until cleared by a physician, including physical education and sport activities.

Physical activity after a concussion often magnifies already existing symptoms and puts the child at risk for a second, potentially more serious, concussion.
## Return to Academics Progression
*(SEE HANDOUT FOR DESCRIPTIONS)*

<table>
<thead>
<tr>
<th>Steps</th>
<th>Progression</th>
</tr>
</thead>
</table>
| 1     | **No School—Cognitive and Physical Rest**  
Family should receive guidance from health care  
professional regarding student’s readiness to return  
to school (based on number, type, and severity of  
symptoms) |
| 2     | **Partial Day Attendance with Adjustments**  
Maximum accommodations  
Shortened day/schedule; breaks |
| 3     | **School—Full day with adjustments** |
| 4     | **School—Full day without adjustments**  
No physical activity until released by a  
healthcare professional |
| 5     | **School—Full day with extracurricular involvement** |
Decision-Making Chart

Allow participation to an extent that does not worsen symptoms

Increase cognitive demand

- Symptoms increase or worsen
  - Discontinue activity. Complete cognitive rest for 20 minutes
    - Symptoms improve with 20 minutes of rest
      - Re-start activity at or below the same level that produced symptoms.
    - Symptoms do not improve with 20 minutes of rest
      - Discontinue activity and resume when symptoms have lessened (such as next day)
- No change in symptoms
  - Continue gradually increasing cognitive demands

Symptoms do not improve with 20 minutes of rest
Discontinue activity and resume when symptoms have lessened (such as next day)
Academic Adjustments Following Concussion

**Front-load academic adjustments**

*Note:* Students may be reluctant to accept adjustments and instead push through symptoms to complete work because of the anxiety associated with work piling up (Halstead et al., 2013; Sady, Vaughan, & Gioia, 2011)

**Map adjustments onto symptoms**

*see following slides for details…*

- **General**
- **Cognitive/Thinking**
- **Fatigue/Physical**
- **Emotional**

**Determine how to modify work load**

*(Heintz, 2012)*

- **Excused assignments**
  - not to be made up-
- **Accountable assignments**
  - responsible for content, not process-
- **Responsible assignments**
  - must be completed by student and will be graded-
Academic Adjustments: General

- Adjust class schedule (alternate days, shortened day, abbreviated class, late start day).
- No PE classes until cleared by a healthcare professional. No physical play at recess.
- Allow students to audit class (i.e., participate without producing or grades).
- Avoid noisy and over-stimulating environments (i.e., band) if symptoms increase.
- Allow students to drop high level or elective classes without penalty if adjustments go on for a long period of time.
- Remove or limit testing and/or high-stakes projects.
- Alternate periods of mental exertion with periods of mental rest.
Academic Adjustments: Cognitive/Thinking

- Reduce class assignments and homework to critical tasks only. Exempt non-essential written class work or homework. Base grades on adjusted homework.

- Provide extended time to complete assignments/tests. Adjust due dates.

- Once key learning objective has been presented, reduce repetition to maximize cognitive stamina (e.g., assign 5 of 30 math problems).

- Allow student to demonstrate understanding orally instead of writing.

- Provide written instructions for work that is deemed essential.

- Provide class notes by teacher or peer. Allow use of computer, smart phone, tape recorder.

- Allow use of notes for test taking.
Academic Adjustments: Fatigue/Physical

- Allow time to visit school nurse/counselor for headaches and other symptoms.
- Allow strategic rest breaks (e.g., 5-10 minutes every 30-45 minutes) during the day.
- Allow hall passing time before or after crowds have cleared.
- Allow student to wear sunglasses indoors. Control for light sensitivity (e.g., draw blinds, sit away from window, hat with brim).
- Allow student to study or work in a quiet space away from visual and noise stimulation.
- Allow student to spend lunch/recess in a quiet space for rest and control for noise sensitivity.
- Provide a quiet environment to take tests.
Develop a plan so student can discreetly leave class as needed for rest.

Keep student engaged in extra-curricular activities. Allow student to attend but not fully participate in sports practice.

Provide quiet place to allow for de-stimulation.

Encourage student to explore alternative activities of non-physical nature.

Develop an emotional support plan for the student (e.g., identify adult to talk with if feeling overwhelmed).
Tools for the Team
*(see handouts or links)*

A flexible set of materials is available from the Heads Up to Schools: Know Your Concussion ABCs

http://www.cdc.gov/headsup/index.html

**Assessment of concussion**
Concussion Signs and Symptoms Checklist


**Return to Academics Progression**

**Progress Monitoring**
Concussion symptom log
Monitoring of academic adjustments

**Symptom-Specific Adjustments**
Academic Adjustments Following Concussion
When Symptoms Do Not Resolve

If managed appropriately, symptoms should resolve in a few weeks.

If problems persist, academic accommodations and student support may be provided through a health plan, a 504 plan, or—in very rare cases—an IEP.

A student may exaggerate or feign symptoms in order to escape work, continue receiving academic adjustments, or avoid resuming sports. In such cases, the concussion team should meet to collaboratively determine next steps.
Progress Monitoring

**Concussion Symptom Log**
Daily or weekly tracking on 0-6 scale.

**Classroom Concussion Assessment Form**
The CTL might also ask open-ended questions (e.g., “How is Spanish class?”) to clarify specific courses or tasks that present difficulty.

As symptoms improve, gradually increase *either* the:
- Amount of work
- Length of time spent on work
- Type or difficulty of work
After Return to School, Follow Return to Play Guidelines

Obtain a health care professional’s clearance for a student to return to play after sustaining a concussion.

- Professional with expertise in concussion evaluation and care
- Failure to do so can increase the risk of subtle neuroinflammation, which may become chronic

Return to play when the student is:

- Symptom-free both at rest and with exertion
  - Symptom-free with no medication
- Back to baseline on academics (and neurocognitive tests, such as ImPACT, if available) https://www.impacttest.com/
Ohio’s Return-to-Play/Concussion Law

Went into effect April 2013
Contains three tenets of model legislation

| Education: Coaches, officials, parents, student athletes | Removal from play if a concussion is reasonably suspected | Clearance by a licensed health care professional for return to play |

The Third International Conference on Concussion in Sport, held in Zurich in 2008, resulted in a Consensus Statement on Concussion in Sport (McCrory et al., 2008).

Recommended that a student athlete proceed through six steps to return to play (the athlete proceeds to the next level if asymptomatic at the current level for at least 24 hours):

1. No activity, complete physical and cognitive rest
2. Light aerobic activity
3. Sport-specific activities and training
4. Noncontact drills
5. Full-contact practice training after medical clearance
6. Game Play
What Do I Do Now?

Designate a concussion team leader (CTL)

Create a culture that encourages reporting of known and suspected concussions

Provide information to all students, parents, and school staff about:
  • how concussions can affect learning
  • how effective concussion management can decrease likelihood of student experiencing health or academic problems as a result of the concussion
  • http://brain101.orcasinc.com/5000/

Ensure school procedures are aligned with concussion plan management

Ensure that all team members have a written guide of responsibilities and expectations


