After School Special: 
Returning to the Classroom 
Following Concussion 

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Disclaimers

• Nothing to disclose.
• I am not a physician; I am an athletic trainer with a passion for the issue of concussions.
• This presentation is a compilation of the most recent research and “best practices” related to returning students to the classroom after concussion.
Topics

• Basic symptoms noticed in the classroom following concussion.
  – Signs a student may need to go back to the doctor.
  – Timeframe of symptoms.
• Importance of following doctor’s orders.
• Importance of parent involvement and rest at home.
• Adjustments/accommodations teachers might use in the classroom.
• Resources
DEFINITION AND SYMPTOMS
Concussion Defined

A concussion is a type of traumatic brain injury (TBI) that results from a bump, blow or jolt to the head (or hit to the body) that causes the brain to move about in the skull. This action damages brain cells and causes chemical changes to occur in the brain.
Symptoms of a concussion

<table>
<thead>
<tr>
<th>PHYSICAL</th>
<th>COGNITIVE</th>
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</thead>
<tbody>
<tr>
<td><strong>How a Person Feels Physically</strong></td>
<td><strong>How a Person Thinks</strong></td>
</tr>
<tr>
<td>Headache/Pressure</td>
<td>Feel in a “fog”</td>
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<tr>
<td>Blurred vision</td>
<td>Feel “slowed down”</td>
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<tr>
<td>Dizziness</td>
<td>Difficulty remembering</td>
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<tr>
<td>Poor balance</td>
<td>Difficulty concentrating/easily distracted</td>
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<tr>
<td>Ringing in ears</td>
<td>Slowed speech</td>
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<tr>
<td>Seeing “stars”</td>
<td>Easily confused</td>
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<tr>
<td>Vacant stare/Glassy eyed</td>
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<td></td>
<td>Nausea</td>
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<td></td>
<td>Vomiting</td>
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<td></td>
<td>Numbness/Tingling</td>
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<td>Sensitivity to light</td>
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<td>Sensitivity to noise</td>
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<td></td>
<td>Disorientation</td>
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<td>Neck Pain</td>
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<thead>
<tr>
<th>EMOTIONAL</th>
<th>SLEEP/ENERGY</th>
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</thead>
<tbody>
<tr>
<td><strong>How a Person Feels Emotionally</strong></td>
<td><strong>How a Person Experiences Their Energy Level and/or Sleep Patterns</strong></td>
</tr>
<tr>
<td>Inappropriate emotions</td>
<td>Fatigue</td>
</tr>
<tr>
<td>Personality change</td>
<td>Drowsiness</td>
</tr>
<tr>
<td>Nervousness/Anxiety</td>
<td>Excess sleep</td>
</tr>
<tr>
<td>Feeling more “emotional”</td>
<td>Sleeping less than usual</td>
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<td></td>
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<tr>
<td></td>
<td>Irritability</td>
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<td></td>
<td>Sadness</td>
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<td></td>
<td>Lack of motivation</td>
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From *REAP The Benefits of Good Concussion Management*, page 7
What to Look for in the Classroom

- Increased problems paying attention
- Increased problems remembering or learning new information
- Longer time needed to complete tasks or assignments
- Difficulty organizing or shifting between tasks
- Greater irritability
- Inappropriate or impulsive behavior in class
- Less ability to cope with stress
- More emotional than usual
- Fatigue
- Difficulties handling stimulating environments
- Physical Symptoms
Length of recovery

- Approximately 80%-90% of students fully recover in 1-3 weeks. (Collins et. al.)
- Awareness of symptoms is first.
- Returning to school within 48-72 hours is typical – once symptoms are improving and tolerable.
- Monitoring symptoms is key.
THE TEAMS INVOLVED
REAP Concussion Management Program at Rocky Mountain Hospital for Children

Concussion management is the process of creating a support system around the injured athlete in order to promote healing. For example, during the course of three weeks, parents may need to limit the student athlete’s social activities; teachers need to cut back on the amount of schoolwork; coaches and certified athletic trainers need to rest the student athlete on the sideline. Then, slowly, under medical supervision, the team paces the student athlete back into play or activity.

REAP Concussion Management
Our director Karen McAvoy, Psy.D., is the author of The REAP Project, a community-based concussion management program for families, schools and medical professionals. The REAP Project focuses on helping all adults and student athletes know and understand how to modify the environment throughout the concussion recovery—to prevent further injury, and to promote healing. This community-based concussion management program works on the premise that concussion is best managed by a multidisciplinary team that includes:

- the student athlete
- family
- various members of the school team
- medical team

REAP
REAP stands for the four essential elements of concussion treatment and management:

R - Remove/Reduce physical and cognitive, or mental demands

E - Educate the student athlete, families, educators, coaches and medical professionals on all of the potential symptoms

A - Adjust/Accommodate for the student athlete academically

P - Pace the student athlete back to learning, activity, and play
Four Teams Working Together

- Family Team
- School Physical Team
- School Academic Team
- Medical Team

As outlined by REAP The Benefits of Good Concussion Management
Family Team

- Comprised of student, parents and others connected with daily direct care.
- In first days, goal is to maximize recovery process. (reduce and rest portion)
- Reduce sensory load at home.
- No driving until medically cleared.
- Lots of rest and sleep, especially first 48 hours.

As outlined by REAP The Benefits of Good Concussion Management
School Physical Team

• Comprised of Coaches, Certified Athletic Trainer, Physical Education Teacher, Playground supervisor, school nurse, others.

• Primary responsibility early is to safeguard the student from any further potential brain injury.

As outlined by REAP The Benefits of Good Concussion Management
School Academic Team

- Comprised of Teacher(s), Counselors, School Psychologist, Administrators, others.
- Coordinate return to cognitive exertion and facilitate appropriate academic adjustments to reduce or eliminate symptoms.
- One person should coordinate – all should understand the effects of concussion on learning and how best to reduce cognitive demands during the recovery period.

As outlined by REAP The Benefits of Good Concussion Management
School Academic Team

• Parent should return student when they can handle 30-45 minutes of cognitive activity or stimulation – even if short day.
• A good amount of learning can take place in 30-45 minute increments; then rest if necessary.
• Missing instruction may require other adjustments.
• Note which classes exacerbate symptoms to further adjust.
• As symptoms improve, incremental increase in expectations should also occur.

As outlined by REAP The Benefits of Good Concussion Management
Medical Team

• Comprised of Emergency Department, Primary Care Doctor, Nurse, Other Specialists.
• Remove from all physical activity.
• Rule-out more serious medical issues.
• Support reduction of school demands and home/social stimulation.
• Encourage Rest.
• “Monday Morning concussion”.

As outlined by REAP The Benefits of Good Concussion Management
What is Return-to-Learn?

• Just like a Return-to-Play (RTP) protocol, current recommendations include a graduated Return-to-Learn (RTL) plan.
  – No one approach will work for everyone; must be tailored.
  – They are NOT parallel processes.

• Step-wise increase in cognitive activity.

• What might it look like? Who is involved?
### TABLE 1.

**Return-to-Learn Plan**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Activity</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>No activity</td>
<td>Complete cognitive rest — no school, no homework, no reading, no texting, no video games, no computer work.</td>
<td>Recovery</td>
</tr>
<tr>
<td>Gradual reintroduction of cognitive activity</td>
<td>Relax previous restrictions on activities and add back for short periods of time (5-15 minutes at a time).</td>
<td>Gradual controlled increase in subsymptom threshold cognitive activities.</td>
</tr>
<tr>
<td>Homework at home before school work at school</td>
<td>Homework in longer increments (20-30 minutes at a time).</td>
<td>Increase cognitive stamina by repetition of short periods of self-paced cognitive activity.</td>
</tr>
<tr>
<td>School re-entry</td>
<td>Part day of school after tolerating 1-2 cumulative hours of homework at home.</td>
<td>Re-entry into school with accommodations to permit controlled subsymptom threshold increase in cognitive load.</td>
</tr>
<tr>
<td>Gradual reintegration into school</td>
<td>Increase to full day of school.</td>
<td>Accommodations decrease as cognitive stamina improves.</td>
</tr>
<tr>
<td>Resumption of full cognitive workload</td>
<td>Introduce testing, catch up with essential work.</td>
<td>Full return to school; may commence Return-to-Play protocol (see Step 2 in Table 2).</td>
</tr>
</tbody>
</table>

Source: Master CL, Giola GA, Leddy JJ, Grady MF
**Suggested School Adjustments**

**Student Name:** ______________________________  **Date:** __________  **Healthcare Signature:** __________________________

The student named above has suffered a concussion. Concussion symptoms tend to slowly and steadily resolve over 3 to 4 weeks. Use this as a guide, consider all suggestions below, not just those checked by the healthcare professional and apply the ones that are appropriate to your class and this student. Be flexible and adjust frequently and lift academic adjustments whenever you no longer feel they are necessary!

**Teachers, please consider categorizing work into:**

<table>
<thead>
<tr>
<th>Work <strong>REMOVED</strong> – Consider removing at least 25% of the workload.</th>
<th>NEGOTIABLE – Consider either “adjusting” workload (i.e. collage instead of written paper) or “delaying” workload but delay no more than 25% of the work.</th>
<th>Work <strong>REQUIRED</strong> – Consider requiring no more than 25% of the workload.</th>
</tr>
</thead>
</table>
| **PHYSICAL:** | **COGNITIVE:**  
*Strategic Rest* - scheduled 15 to 20 minute breaks in clinic/quiet space (mid-morning: mid-afternoon and/or as needed). | REDUCE workload in the classroom/homework.  
REMOVE non-essential work.  
REDUCE repetition of work (i.e. only do even problems, go for quality not quantity).  
Adjust “due” dates; allow for extra time.  
Allow student to “audit” classwork.  
Exempt/postpone large test/projects; alternative testing (quiet testing, one-on-one testing, oral testing).  
Allow demonstration of learning in alternative fashion Provide written instructions.  
Allow for “buddy notes” or teacher notes, study guides, word banks.  
Allow for technology (tape recorder, smart pen) if tolerated.  |
| Sunglasses (inside and outside).  
Quiet room/environment, quiet lunch, quiet recess.  
More frequent breaks in classroom and/or in clinic.  
Allow quiet passing in halls.  
**REMOVE** from PE, physical recess, & dance classes without penalty  
Sit out of music, orchestra and computer classes if symptoms are provoked. | **Cognitive:**  
trouble with concentration remembering mentally "foggy" slowed processing  
**EMOTIONAL:**  
**Sleep/Energy:**  
mental fatigue drowsy sleeping too much sleeping too little can’t initiate/maintain sleep |
| **EMOTIONAL:**  
Allow student to have “signal” to leave room.  
Help staff understand that mental fatigue can manifest in “emotional meltdowns”.
|  
Allow student to remove him/herself to de-escalate.  
Allow student to visit with supportive adult (counselor, nurse, advisor). |
| Watch for secondary symptoms of depression and anxiety usually due to social isolation and concern over “make-up work” and slipping grades. These extra emotional factors can delay recovery. |

**Symptom Wheel**

- Physical: headache/nausea dizziness/balance problems light sensitivity/blurred vision noise sensitivity
- Cognitive: trouble with concentration remembering mentally "foggy" slowed processing
- Emotional: feeling more emotional nervous sad angry irritable
- Sleep/Energy: mental fatigue drowsy sleeping too much sleeping too little can’t initiate/maintain sleep

If student symptoms persist or are severe (symptoms compromise attendance or quality of work compromises grades), consider a 504 plan and/or consider a Response-to-Intervention (RTI) Plan or Health Plan. If prolonged recovery requires specialized instruction or modified curriculum, school is obligated to consider an IDEA referral.

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REAP suggests the following timeframe:

<table>
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<tr>
<th>TEAM</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
</tr>
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<tbody>
<tr>
<td><strong>Family Team</strong>&lt;br&gt;Help child understand he/she must be a “honest partner” in the rating of symptoms</td>
<td>• Impose rest.&lt;br&gt;• Assess symptoms daily — especially monitor sleep/energy and emotional symptoms.</td>
<td>• Continue to assess symptoms (at least 3X week or more as needed), monitor if symptoms are improving.&lt;br&gt;• Continue to assess symptoms and increase/decrease stimulation at home accordingly.</td>
<td>• Continue with all assessments (at least 2X week or more as needed).&lt;br&gt;• Continue to assess symptoms and increase/decrease stimulation at home accordingly.</td>
</tr>
<tr>
<td><strong>School Team Physical Coach/ATC/School Nurse</strong>&lt;br&gt;(Assign 1 point person to oversee/manage physical symptoms)</td>
<td>• REMOVE from all play/physical activities!&lt;br&gt;• Assess physical symptoms daily, use objective rating scale.&lt;br&gt;• ATC: assess postural-stability (see NATA reference in RESOURCES).&lt;br&gt;• School Nurse: monitor visits to school clinic. If symptoms at school are significant, contact parents and send home from school.</td>
<td>• Continue to assess symptoms (at least 3X week or more as needed).&lt;br&gt;• ATC: postural-stability assessment.</td>
<td>• Continue with all assessments (at least 2X week or more as needed).&lt;br&gt;• ATC: postural-stability assessment.</td>
</tr>
<tr>
<td><strong>School Team Academic Educators, School Psychologist, Counselor, Social Worker</strong>&lt;br&gt;(Assign 1 point person to oversee/manage cognitive/emotional symptoms)</td>
<td>• REDUCE (do not eliminate) all cognitive demands.&lt;br&gt;• Meet with student periodically to create academic adjustments for cognitive/emotional reduction no later than Day 2/3 and then assess again by Day 7.&lt;br&gt;• Educate all teachers on the symptoms of concussion.&lt;br&gt;• See ADJUST/ACCOMMODATE section.</td>
<td>• Continue to assess symptoms (at least 3X week or more as needed) and slowly increase/decrease cognitive and academic demands accordingly.&lt;br&gt;• Continue academic adjustments as needed.</td>
<td>• Continue with all assessments (at least 2X week or more as needed) and increase/decrease cognitive and academic demands accordingly.&lt;br&gt;• Continue academic adjustments as needed.&lt;br&gt;• Assess if longer term academic accommodations are needed (May need to consider a 504 Plan beyond 3+ weeks).</td>
</tr>
<tr>
<td><strong>Medical Team</strong></td>
<td>• Assess and diagnose concussion.&lt;br&gt;• Assess for head injury complications, which may require additional evaluation and management (Supplemental information for MD may be found at RockyMountainHospital-ForChildren.com).&lt;br&gt;• Recommend return to school with academic adjustments once symptoms are improving and tolerable, typically within 48 to 72 hours.&lt;br&gt;• Educate student/athlete and family on the typical course of concussion and the need for rest.&lt;br&gt;• Monitor that symptoms are improving throughout Week 1 — not worsening in the first 48 to 72 hours.</td>
<td>• Continue to consult with school and home teams.&lt;br&gt;• Follow-up medical check including comprehensive history, neurologic exam, detailed assessment of mental status, cognitive function, gait and balance.</td>
<td>• Continue to consult with school and home teams.&lt;br&gt;• Weeks 3+, consider referral to a Specialty Concussion Clinic if still symptomatic. It is best practice that a medical professional be involved in the management of each and every concussion, not just those covered by legislation.</td>
</tr>
</tbody>
</table>

*Family should sign a Release of Information so that School Team and Medical Team can communicate with each other

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Don’t be alarmed by the symptoms - symptoms are the hallmark of concussion. The goal is to watch for a slow and steady improvement in ALL symptoms over time. It is typical for symptoms to be present for up to three weeks. If symptoms persist into Week 4, see SPECIAL CONSIDERATIONS.
SPECIAL CIRCUMSTANCES
Response to Intervention (RTI)

• 2004 Re-authorization of Individuals with Disability Education Act (IDEA).

• Good teaching and reasonable academic adjustments in the general education classroom can support 80-90% of students with mild or temporary learning or behavior issues.
504 B Plan

- “Targeted Intervention”.
- Still temporary, but may take months for progress to be apparent.
- Continue to keep student out of physical play.
Individualized Education Plan (IEP)

• Required when changes to the curriculum/placement/instruction are needed.

• In rare case of a permanent issue, the student may need assessed and staffed into special education services and provided an IEP.

• Parents and medical professionals need to seek a medical explanation for slow recovery.

• Continue to keep student out of physical play.
Resources

• CDC website – Returning to School After a Concussion: A Fact Sheet for School Professionals

• REAP Guidelines Booklet – Must create account to Issuu in order to download, but is worth doing.
Questions
References


References


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