Return To Learn

Kenneth Podell, PhD
Dir., Houston Methodist Concussion Center
School-based concussion education talks graciously sponsored by The Houston Texans
• 50 States have RTP laws only 9 have RTL laws.
  – All 9 hold school responsible for RTL.
    • Only 2/9 mandate any educational component for school personnel
      – None for academic personnel
    • None addressed PCS
    • Only 1 recommended an evidence-based approach

• NCAA has standards for RTL
  – Short and long-term

Thompson, LL, Pediatrics. 2016;138(6)
**Societal Support**
State law and coordination
Incentive
District RTL policy
Financial support

**RTL Program Development**
Best practices (REAP, Brain 101)
Feedback
Research and refinement

**School**
RTL written policy
RTL champion & team
Adequate teacher support and resources
Student Liaison
Accountability
Education for staff, parents and student
Monitoring of RTL program

**Student-centric, contextually appropriate, nurturing RTL program**

*Lyons, VJ, J School Health, 87(6), 2017*
It Takes A Village

School Health
ATC, Nurse, AD/Coach

School Academics
Admin, Teachers, Counselors, School Psych

Student-Athlete

Family
Parents, siblings

Outside Med Team
Physician, Neuropsych, PT, Opth.

Modeled after: Nationwide Children’s Hospital http://www.nationwidechildrens.org/academic-concussion-management
Concussion and Learning: A two-way street

Effects of Concussion On Learning
* Neurometabolic dysfunction leading to mental foggy, fatigue, poor focus, slowed thinking
* Physical/Somatic Symptoms
  - H/A, sensory sensitivity, disrupted sleep
* Vestibular-ocular/ocular-motor deficits
* Emotional Symptoms
* Anxiety can be direct effect of concussion

Effects of Learning on Concussion
* Secondary Effects of Anxiety
* Cognitive/mental over-exertion
* Make-up work and keeping up
  - 80% report it 1 month post
* Lack of sleep trying to make up work and anxiety
* Perceived lack of support
Students’ Perception about RTL
Students Perceptions

- Greater sx severity associated with greater perceived school problems
- HS > middle = elementary
  - More demanding academics

Student Perceived Academic Changes

<table>
<thead>
<tr>
<th>Category</th>
<th>Not Recovered</th>
<th>Recovered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grades Down</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>&gt; 1 problem</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Impaired Academics</td>
<td>70</td>
<td>50</td>
</tr>
</tbody>
</table>

Ransom, DM, Pediatrics., 135 (6), 2015
% of Students with Perceived Sx Interference After Concussion

% of Students Reporting Problems By Subject

Randsom, DM, Pediatrics., 135 (6), 2015
Percent of Student’s Perceived Academic Task Problem

- More HW Time
- Poor understand
- Prob Studying
- Prob taking Class Notes

Percent Reporting Difficulty

Recovered | Not Recovered

Randsom, DM, Pediatrics., 135(6), 2015
Vestibular & Vision Difficulties and RTL

• 81% have vestibular disorder acutely \(^1\)
  – Took longer to recover and complete RTP
• Visual problems are common acutely after SRC \(^2\)
  – 69% have a visual disorder acutely (46% >2 components)
• 30% report academic problems over 21 days out \(^3\)
  – Vision (OR=2.7), hearing (OR=2.4) and concentration (OR=21.7)

\(^1\)Corwin, DJ et al, J Pediatr, 166(5), 2015
\(^3\)Swanson MW, Optom Vis Sci, 94(1), 2016
Do Concussions Actually Impact Grades

- No clear effect of concussion on academic outcome
  - Concussion associated with 0.9% GPA decline
  - No concussion still associated with a 0.57% GPA decline
- No difference in national testing scores.
- No difference in graduation rate

• Too much, as well as too little, cognitive activity is associated with longer recovery from concussion.
• Desirable to pace a student’s academic load below symptom threshold.
• Specific to SJS (at least upper school)
  – Managing anticipatory anxiety
Concussion Diagnosed – Concussion Mgt Team and teachers notified

No School 1-3 days (can be less). Sx are monitored to determine when return to school
Update sent to CMT and relevant teachers
RTL is started with modified attendance, academics

Complete RTL plan and finish up RTP exercise protocol
Final medical and school clearance

Meet with S-A (and parent) after Step 2 or 3.
Explain plan and educate, reduce anxiety and start make-up work

• Symptoms monitored with PCSS by point person (ATC?)
• ATC educates parents and S-A
• First 1-2 steps of RTL/RTS are mapped out
• Incorporate treater’s recommendations
• Distributed to all teachers

• S-A and parent meet with academic point person and educated about RTL process. Accommodations and classes reviewed.
• Symptoms monitored with PCSS by point person (ATC?)
• Monitor exercise and academic treatment plan

• Sx are monitored
• Monitor exercise treatment plan
• Monitor anxiety
• Revise RTL plan

Communication between all academic members and student and parents is critical to success!
5 Steps Return to School

**Step 1: Emphasize Cognitive and Physical Rest**
- No physical/cognitive activity for a short period
- Will start with lite reading when possible
- May need to stay home from school

**Step 2: Open for Modified Daily Class Schedule**
- No participation in PE; maybe lite physical activity
- Reduced work load
- Extra time on exams and assignments

**Step 3: Possible Return to Full Day of School**
- Light physical activity - cleared by a health provider
- Gradually increase amount of assignments
- Extra time on assignments and exams

**Step 4: Reduction of Accommodations and Return to Moderate Physical Activity**
- May engage in moderate physical activity
- May starting taking tests
- Extra time on exams as needed

**Step 5: Full Academic Load**
- Physical activity without any restrictions
- Return to school full time without any restrictions
Treatment Plan

Athlete Name: Date of Evaluation: , 2019 School:

You have suffered a concussion, which is a type of brain injury. When treated properly, most concussions heal over time without significant residual or lasting problems. However, it is important to follow our instructions below. Failure to do so can lead to prolonging and worsening of your symptoms. Sustaining another concussion before you have completely healed from this concussion can lead to more severe and even long-term injury to your brain. Therefore, at this time you should not return to ANY contact sport activity (practice, games, contact drills) until you have been cleared to do so by your treating doctor. Below are our recommended treatment and accommodations:

Recommendations

☐ No physical exertion until cleared
☐ Complete Symptom Questionnaire on/2019 and return to HMCC via fax (713-790-5055), or as a PDF or through ImPACT Passport app to email (kpodell@houstonmethodist.org).
☐ Complete ImPACT testing on _______ at MCC school other_______________________
☐ Return to Clinic week of
☐ No Phys. Educ/Athletics until cleared
☐ No driving/operating machinery
☐ Minimize video game playing/texting/computer.
☐ Wear sunglasses as needed (even indoors)
☐ No school
☐ Attend classes
☐ No Homework
☐ Postpone examinations, assignments, quizzes

☐ Note take/testing accommodations
☐ Modified homework assignments (e.g., assign 50% of the problems for homework)
☐ Frequent breaks when experiencing symptoms (e.g., Chores/homework) in reduced intervals
☐ Go to school nurse to rest as needed
☐ Other:

Referrals

_____ Physical Therapy. Methodist Physical Therapy
☐ Follow up with ________________________________ . Telephone______________
☐ Follow up with ________________________________ . Telephone______________

_____ MRI of the brain with concussion protocol. TMHS Dept of Radiology

Signature(s):

Kenneth Podell, Ph.D., FACPN, Director Methodist Concussion Center
6550 Fannin, Suite 1840 Houston Texas 77030 • 713.441.8277 Office
Helpful Tips

Electronics

• F.lux/Dimming electronic screens
• Blue-light blocking or FL-41 tinted glasses
• Font size
• Raising laptop off of table to reduce angle of neck and shoulders
• Reverse computer screens – white letter on black background
  – Magnifier app on Windows

No backpack if whiplash injury
How to Invert Screen Color

Windows-based Computers
1. Launch Magnifier. Click on the Start. ...
2. Zoom out (optional). When the Magnifier application opens, your screen will be zoomed in.
3. Click on the gray gear to open the "Magnifier Options" (settings).
4. Check the box next to "Turn on color inversion".
5. Click OK. ...
6. Pin the Magnifier program to the taskbar.

Macs
1. Open Apple Menu (apple icon in upper left) and click on system preference
2. Go to the Keyboard panel, and click on the Keyboard tab
3. Select Accessibility in the sidebar.
4. Open display
5. Check the box next to "Invert Colors".
6. You should then be able to use Control-Option-Command-8 as the shortcut or set your own shortcut by clicking on the key combination on the right.
7. Alternatively, you can push Command-Option-F5 to bring up an Accessibility dialog that will let you invert colors on your display.
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Helpful Tips

Classroom

- Reduced class attendance
  - Prioritize/mix/start later
- Naps in nurses office
- Rest breaks during or between classes
- Transition from classes early or late
- Preferential seating
- Teacher or Student notes
- Soft-color paper
- Audio-books
- Extra time for assignments/tests
  - Limited number of make-up tests
  - Do before lunch

Classroom

- Sun or tinted glasses
  - Blue-light or FL-41
- Audio tape/note taker
- Off-color paper
- Tutoring – limited
- Enough sleep at night
Helpful Tips

Mood - Anxiety

• Reassurance
• Education
• Relaxation
  – Breath 2 Relax
• Psychotherapy
Backpacks and Posture
Backpack should weigh no more than 10% of student’s body weight.

Long-term effects of carrying a heavy backpack:
- Strained neck and shoulders leading to headaches
- Damage to the spine
- Reduced breathing capacity due to poor posture
- Scoliosis
- Back pain and muscle spasms

60% of students 12-17 carry backpacks that weigh 10% or more of their body weight.

20% of students 12-17 carry bags that weigh 15% or more of their body weight.

**How to Choose and Wear Your Backpack:**

Never carry more than **10%** of your body weight.

To reduce the strain of the backpack, place the heaviest items **closest to your back.**

Always use **both** straps.

The **wider and more padded** the straps are the better. Thin straps can cut into the nerves and circulation in your shoulders.

Do not let the backpack sit any lower than the **hollow** of your lower back.

When selecting a backpack, pick the **smallest** one you can manage, while still being able to fit all your things into it. The smaller the backpack, the less likely you are to add more weight to it.

Try using digital textbooks on either an **iPad or Kindle** to reduce the weight of the backpack.
Cell Phone Posture aka Text Neck Syndrome

FORCE ON NECK

- 10-12 lbs.
- 27 lbs.
- 40 lbs.
- 49 lbs.
- 60 lbs.

0 DEGREES | 15 DEGREES | 30 DEGREES | 45 DEGREES | 60 DEGREES

NORMAL POSTURE | LONG TERM USE OF DEVICES | FORWARD HEAD POSTURE (FHP)

[Images showing posture changes with increasing force on neck]
Thank You!

KPODELL@houstonmethodist.org