



Concussion in School

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Today's discussion will cover

- ▶ A brief introduction of a concussion
- ▶ Review of the CDC guidelines
- ▶ Concussion Management Teams

Your Role

You are the first line of defense in concussion awareness

Know: Signs and symptoms.

Assess: Observe changes in child's typical behavior.

Manage: Keep open communication with coaches, parents, teachers, health care providers and follow concussion recovery guidelines.

Evaluating Concussions



*When it happens,
Where it happens*

- ▶ On site at the time of the event
- ▶ Immediate signs and symptoms
- ▶ Continue monitoring
- ▶ Medical evaluation

Concussion Diagnosis

- ▶ The event
- ▶ Signs and/or symptoms
- ▶ Some signs and symptoms may indicate a more severe brain injury

Immediate signs and symptoms

- ▶ Confusion
- ▶ Loss of balance
- ▶ Disoriented to time and place
- ▶ Glassy-eyed
- ▶ Slurred speech
- ▶ Loss of consciousness



Call 911 . . .

- ▶ Vomiting
- ▶ Numbness or tingling
- ▶ Slurred speech
- ▶ Loss of consciousness
- ▶ Seizure
- ▶ Symptoms get worse instead of better



Now what?

- ▶ Has the student seen a physician? Has concussion been ruled out or is a concussion diagnosed?
- ▶ Does your school district have a formal concussion protocol?
- ▶ Does your school district have a Concussion Management Team?

CDC Guidelines



- ▶ On the diagnosis and management of mTBI among children
- ▶ *Published and released September 2018*

CDC Guidelines on the Diagnosis and Management of mTBI among Children

- ▶ First evidence based clinical guideline to date for diagnosing and managing pediatric mTBI
- ▶ 19 recommendations
- ▶ Recommendations fall into one of three topic areas: **diagnosis, prognosis, and management/treatment**
- ▶ Each recommendation is assigned a level of obligation:
 - ▶ **Level A** recommendation almost always should be followed
 - ▶ **Level B** recommendation should usually be followed
 - ▶ **Level C** recommendation may sometimes be followed

Diagnostic Recommendations

- ▶ Imaging recommendations
- ▶ Neuropsychological tools including symptom scales, computerized cognitive testing, and Standard Assessment of Concussion (SAC)
 - ▶ Use age-appropriate symptom scales (**B**)
 - ▶ May use validated, age-appropriate computerized cognitive testing (**C**)
 - ▶ SAC should not be exclusively used to diagnose mTBI (**B**)
- ▶ Serum markers to be used in research only

Prognostic Recommendations

- ▶ **7** – Counsel patients and families that most children with mTBI recover in one to three months, each recovery is unique, and some factors predict an increased or decreased risk for prolonged symptoms (**B**)
- ▶ **8** – Assess premorbid history before injury (part of pre-participation athletic examinations); counsel patients and families that recovery may be delayed if (**B**):
 - ▶ History of mTBI
 - ▶ Lower cognitive ability and learning difficulties
 - ▶ Neurological or psychiatric disorder
 - ▶ Increased preinjury symptoms
 - ▶ Family and social stressors

Prognostic Recommendations

continued

- ▶ **9** – Screen for known risk factors for persistent symptoms (**B**); provide prognostic counseling for children with known risk for persistent symptoms (**C**)
 - ▶ Older children/adolescents
 - ▶ Hispanic ethnicity
 - ▶ Lower socioeconomic status
 - ▶ More severe presentation of mTBI symptoms
 - ▶ Reporting more acute post concussion symptoms
 - ▶ Headaches persist longer in girls

NOTE: No single factor is strongly predictive of outcome

Prognostic Recommendations

continued

- ▶ **10** – Assessment tools and prognosis
 - ▶ Use a combination of tools to assess recovery (**B**)
 - ▶ Use validated symptom scales to assess recovery (**B**)
 - ▶ May use validated cognitive testing, including reaction time, to assess recovery (**C**)
 - ▶ May use balance testing to assess recovery in adolescent athletes (**C**)

NOTE: No single assessment tool is strongly predictive of outcome

Interventions and Management Recommendations

- ▶ **11A** – Monitor closely for children at high risk for persistent symptoms (based on premorbid history, demographics, & injury characteristics) (B)
- ▶ **11B** - Refer for appropriate assessments and/or interventions for children whose symptoms do not resolve within 4-6 weeks (B)
- ▶ **12 – (Level A)** Education and Reassurance for the family including:
 - ▶ Warning signs of more serious injury
 - ▶ Description of injury and expected course of symptoms and recovery
 - ▶ How to monitor post concussive symptoms
 - ▶ Prevention of further injury
 - ▶ Management of cognitive and physical activity/rest
 - ▶ Instructions for return to play/recreation and school
 - ▶ Clear clinician follow up instructions

Interventions and Management Recommendations: Cognitive and Physical Rest

▶ 13 A through D: all Level B

- ▶ During the first few days counsel patients to observe more restrictive physical and cognitive activity
- ▶ After first few days counsel patients to resume a gradual schedule of activity that does not exacerbate symptoms
- ▶ After gradual increase of activity introduce aerobic activity that does not exacerbate symptoms; closely monitor symptoms and symptoms severity
- ▶ Return to full activity when patient returns to premorbid performance; symptom free at rest; increasing levels of physical exertion

▶ 14 -

- ▶ Assess extent and types of social support; emphasis on social support as a key element in the education of caregivers and educators (C)

Interventions and Management Recommendations: Return to school

► Rationale

- Injury symptoms such as headaches, fatigue, concentrating on schoolwork, and difficulty taking notes interfere with learning and academic performance
- Consensus is to minimize cognitive and physical overexertion
- Encourage prompt return to school to avoid the effects of prolonged school absence
- Protocols need to affirm the need for continued collaboration among medical, school, and family to adjust interventions and return the student to full school participation without significant worsening of symptoms.
- Symptoms should be the focus of interventions and specific accommodations to limit symptom expression
- Individualization of return to school programming is necessary

Return to school *continued*

- ▶ Counsel student and family about the return to school process that gradually increases duration and intensity of academic activities as tolerated
- ▶ Return to school protocols should be customized based on the severity of symptoms
- ▶ School-based teams should assess educational needs of students with prolonged symptoms and provide additional educational supports including 504

Return to school *continued*

- ▶ Symptoms and academic progress in school should be monitored by school and medical teams, student, and family
- ▶ Educational supports should be monitored and adjusted on an on-going basis by the school-based team
- ▶ Healthcare professionals should refer students with prolonged symptoms and academic difficulty for formal evaluation by a specialist in pediatric mTBI

Interventions and Management Recommendations

- ▶ **16** – Posttraumatic headaches
- ▶ **17** – Vestibular-Oculomotor dysfunction
- ▶ **18** – Sleep
- ▶ **19** – Cognitive impairment (memory, attention, learning response speed, executive functions)
 - ▶ Determine the etiology of impairment (pathology of the mTBI, secondary effects of symptoms such as headache, fatigue, low frustration tolerance)
 - ▶ Recommend treatment that reflects the assumed etiology
 - ▶ Student with prolonged symptoms may be referred to neuropsychologist for evaluation to determine etiology, and recommend targeted treatment

School-based Concussion Management Teams



- ▶ Determine staff
- ▶ Training
- ▶ Determine communication method
- ▶ Decide on forms

Determine Staff

- ▶ Initial meeting
 - ▶ Admin
 - ▶ Teacher
 - ▶ CST
 - ▶ SAC
 - ▶ School Nurse
 - ▶ ATC
- ▶ How many staff do you need on your team?
 - ▶ Academic monitor
 - ▶ Symptoms monitor



Communication Method

- ▶ What methods does your school currently use?
 - ▶ Paper
 - ▶ Paper and phone
 - ▶ Email
 - ▶ Google docs
- ▶ Maintaining HIPAA compliance
- ▶ Who should be included in communications?

Forms

- ▶ Fact sheet
- ▶ Student's concussion information
 - ▶ Physician
 - ▶ Parents
 - ▶ Student
 - ▶ CMT
 - ▶ Teachers
- ▶ Symptoms tracking chart
- ▶ Accommodations, modifications, and progress updates

Student Concussion Information

- ▶ Unique identifier for student
- ▶ Date of injury
- ▶ Where it happened: in school, school based activity, outside of school.
- ▶ Description of the event
- ▶ Diagnosis
- ▶ Names of physician(s), and CMT members (school contact staff)
- ▶ Medical interventions
- ▶ Factors that may affect recovery
- ▶ Specific symptoms

Return to School Plan

- ▶ No activity
- ▶ Gradual reintroduction of cognitive activity
- ▶ Homework at home before school work at school
- ▶ School re-entry
- ▶ Gradual reintegration into school
- ▶ Resumption of full cognitive workload



TABLE 1.

Return-to-Learn Plan

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

Source: Master CL, Gioia GA, Leddy JJ, Grady MF

No Activity

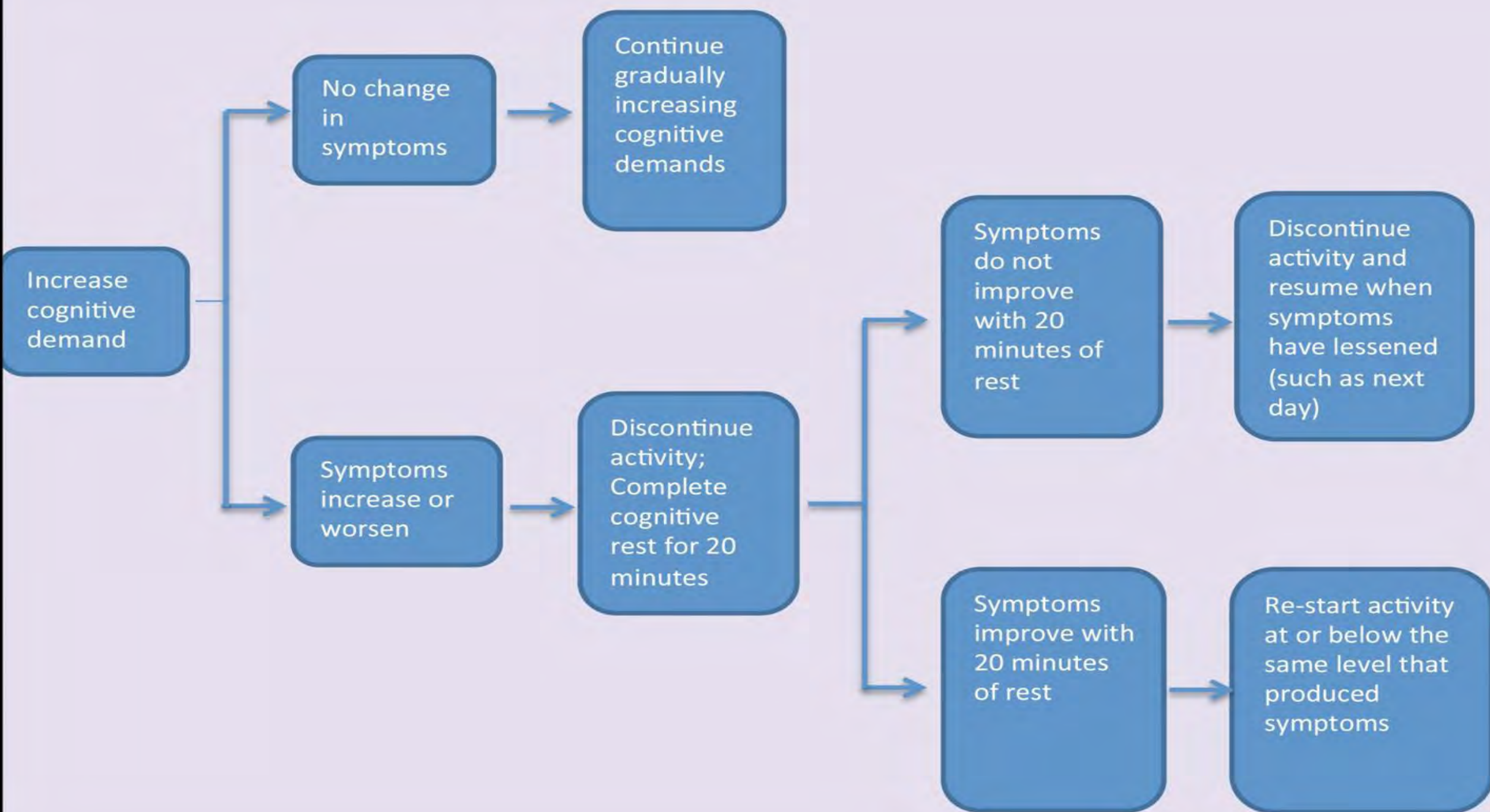
Objective is recovery

- ▶ **Complete cognitive rest**
 - ▶ No school
 - ▶ No homework
 - ▶ No reading
 - ▶ No texting
 - ▶ No video games
 - ▶ No computer work

Gradual reintroduction of cognitive activity

Objective is gradual controlled increase in sub symptom threshold cognitive activities.

- ▶ Relax previous restrictions on activities and add back for short periods of time
 - ▶ 5 – 15 minutes at a time



Homework at home before school work at school



Objective is to increase cognitive stamina by repetition of short periods of self-paced cognitive activity.

- ▶ Homework in longer increments
 - ▶ 20 – 30 minutes at a time

School Re-entry



Objective is to return to school with accommodations to permit controlled sub symptom threshold increase in cognitive load.

- ▶ Begin with partial day of school after the student can tolerate 1-2 cumulative hours of homework at home

Gradual reintegration into school

Objective is to decrease accommodations as cognitive stamina improves.

- ▶ Increase to full day of school

Resumption of full cognitive workload

Objective is full return to school.

- ▶ Make up work and catch up with essential work

Trainings

- ▶ *Brain Injury Primer-* Rutgers Professional Development
- ▶ sportsconcussion.bianj.org
- ▶ *Concussion: What Youth Sports Coaches Need to Know* – Free online course for coaches, trainers, etc.
- ▶ CDC



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Thank You!

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