COLORADO
Department of Education

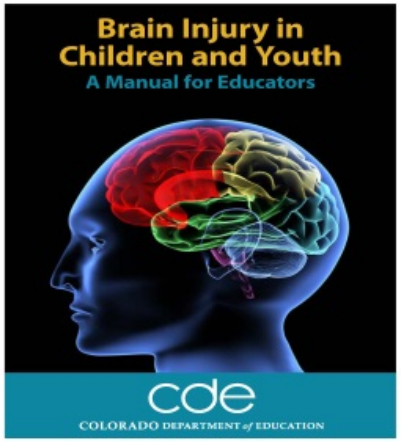
Concussion Management: Best Practices

May 26, 2015

Kristy Werther, LCSW

Colorado Department of Education Resources

CDE Concussion Management Guidelines



CDE Brain Injury in Children and Youth: A Manual for Educators

Colorado Department of Education Resources

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Concussion Action Team Teleconference Meetings: Monthly conference calls open to all school professionals across Colorado as an opportunity to discuss challenges and share information related to concussion management.

Brain Injury and Concussion Listservs: Receive information on upcoming events, and educational opportunities.

For more information or to join contact:

CDE Health and Wellness- Brain Injury
303-866-6867

What is Concussion Management?

Colorado Concussion Legislation

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1. Education t
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Psychologist

NOTE: This bill has been prepared for the signature of the appropriate legislative officers and the Governor. To determine whether the Governor has signed the bill or taken other action on it, please consult the legislative status sheet, the legislative history, or the Session Laws.

An Act

SENATE BILL 11-040

BY SENATOR(S) Spence and Newell, Aguilar, Boyd, Guzman, Heath, Hudak, Johnston, Nicholson, Schwartz, Shaffer B., Tochtrop, White, Giron, King S.;
also REPRESENTATIVE(S) Summers and Todd, Casso, Fields, Fischer, Hamner, Hullinghorst, Labuda, Peniston, Ryden, Solano, Soper, Vigil, Williams A.

CONCERNING THE REQUIREMENT THAT A COACH OF AN ORGANIZED YOUTH ATHLETIC ACTIVITY FOLLOW CONCUSSION GUIDELINES, AND, IN CONNECTION THEREWITH, CREATING THE "JAKE SNAKENBERG YOUTH CONCUSSION ACT".

Be it enacted by the General Assembly of the State of Colorado:

SECTION 1. Title 25, Colorado Revised Statutes, is amended BY

Consensus statement on concussion in sport: the 4th International Conference on Concussion in Sport held in Zurich, November 2012

Paul McCrory,[1] Willem H Meeuwisse,[2,3] Mark Aubry,[4,5,6] Bob Cantu,[7,8] Jiří Dvořák,[9,10,11] Ruben J Echemendia,[12,13] Lars Engebretsen,[14,15,16] Karen Johnston,[17,18] Jeffrey S Kutcher,[19] Martin Raftery,[20] Allen Sills,[21] Brian W Benson,[22,23,24] Gavin A Davis,[25] Richard G Ellenbogen,[26,27] Kevin Guskiewicz,[28] Stanley A Herring,[29,30] Grant L Iverson,[31] Barry D Jordan,[32,33,34] James Kissick,[6,35,36,37] Michael McCrea,[38] Andrew S McIntosh,[39,40,41] David Maddocks,[42] Michael Makdissi,[43,44] Laura Purcell,[45,46] Margot Putukian,[47,48] Kathryn Schneider,[49] Charles H Tator,[50,51,52,53] Michael Turner[54]

► Additional material is published online only. To view these files please visit the journal online (http://dx.doi.org/10.1136/bjsports-2013-092313).

For numbered affiliations see end of article.

Correspondence to:
Dr Paul McCrory, The Florey Institute of Neuroscience and Mental Health, Heidelberg, VIC 3084, Australia;
paulmccr@bigpond.net.au

PREAMBLE

This paper is a revision and update of the recommendations developed following the 1st (Vienna 2001), 2nd (Prague 2004) and 3rd (Zurich 2008) International Consensus Conferences on Concussion in Sport and is based on the deliberations at the 4th International Conference on Concussion in Sport held in Zurich, November 2012.[1–3]

The new 2012 Zurich Consensus statement is designed to build on the principles outlined in the previous documents and to develop further conceptual understanding of this problem using a formal consensus-based approach. A detailed description of the consensus process is outlined at the end of

SECTION 1: SPORT CONCUSSION AND ITS MANAGEMENT

The Zurich 2012 document examines the sport concussion and management issues raised in the previous Vienna 2001, Prague 2004 and Zurich 2008 documents and applies the consensus questions from section 3 to these areas.[1–3]

Definition of concussion

A panel discussion regarding the definition of concussion and its separation from mild traumatic brain injury (mTBI) was held. There was acknowledgement by the Concussion in Sport Group

National Association of School Nurses

Concussions - The Role of the School Nurse

Position Statement

printable version

SUMMARY

It is the position of the National Association of School Nurses that the registered professional school nurse (hereinafter referred to as school nurse) is an essential member of the team addressing concussions. As the school-based clinical professional on the team, the school nurse has the knowledge and skills to provide concussion prevention education to parents, students and staff; identify suspected concussions; and help guide the student's post-concussion graduated academic and activity re-entry process. The school nurse collaborates with the team of stakeholders including health care providers, school staff, athletic trainers, and parents.

HISTORY

The number of school-age children who have sustained concussions increased over the past few years (Bakhos, Lockhart, Myers & Linakis, 2010). Each year, U.S. emergency departments treat an estimated 135,000 sports- and recreation-related traumatic brain injuries (TBIs), including concussions, among children ages 5 to 18 (Centers for Disease Control [CDC], 2007). While falls are the most common cause of these concussions in children, sports-related concussions in school-age children are rising at an increasing rate (Faul, Xu, Wald, & Coronado, 2010; Lincoln, et.al. 2011). Almost half a million emergency department visits for traumatic brain injuries (TBI) are made annually by children aged 0 to 14 years (Faul et al., 2010). This increase in concussions may be due in part to a greater awareness of the condition and its symptoms or increased rates (Lincoln et al., 2011). The actual incidence of concussions may be higher than is currently reported due to lack of standardization in reporting and underreporting (Guskiewicz, Weaver, Padua, & Garrett, 2010; Halstead, Walter & The Council on Sports Medicine and Fitness, 2010). A variety of concussion management guidelines are emerging. For example, the CDC (2009) has developed the Heads Up campaign for concussion prevention and management.

DESCRIPTION OF ISSUE

Concussions are considered to be a mild form of a traumatic brain injury and the potential for their occurrence in children is greatest during activities where collisions can occur, such as during physical education (PE) class, playground time, or school-based sports activities (CDC, 2009). Recognition of a concussion and immediate assessment is critical in preventing further injury and for post-concussion management. Any force or blow to the head and/or symptoms of a concussion in a student or athlete should be immediately evaluated by either the school nurse or designated, trained school personnel. A consensus statement approved by the 3rd International Conference on Concussion states that, although most people recover quickly and fully from a concussion, the time needed is often slower among young children and teens (McCrory et al., 2009). During this recovery phase, the student may have an array of physical, mental, and emotional symptoms, which can impact the student in the school setting. Children with diagnosed concussions require significant cognitive rest and a graduated re-entry plan to pre-concussion activities as determined by the licensed health care provider.

CDE

Published Ahead of Print on March 18, 2013 as 10.1212/WNL.0b013e31828d57dd

SPECIAL ARTICLE

Summary of evidence-based guideline update: Evaluation and management of concussion in sports

Report of the Guideline Development Subcommittee of the American Academy of Neurology

Christopher C. Giza, MD*
Jeffrey S. Kutcher, MD*
Stephen Ashwal, MD, FAAN
Jeffrey Barth, PhD
Thomas S.D. Getchius
Gerard A. Gioia, PhD
Gary S. Gronseth, MD, FAAN
Kevin Guskiewicz, PhD, ATC
Steven Mandel, MD, FAAN
Geoffrey Manley, MD, PhD
Douglas B. McKeag, MD, MS
David J. Thurman, MD, FAAN
Ross Zafonte, DO

ABSTRACT

Objective: To update the 1997 American Academy of Neurology (AAN) practice parameter regarding sports concussion, focusing on 4 questions: 1) What factors increase/decrease concussion risk? 2) What diagnostic tools identify those with concussion and those at increased risk for severe/prolonged early impairments, neurologic catastrophe, or chronic neurobehavioral impairment? 3) What clinical factors identify those at increased risk for severe/prolonged early postconcussion impairments, neurologic catastrophe, recurrent concussions, or chronic neurobehavioral impairment? 4) What interventions enhance recovery, reduce recurrent concussion risk, or diminish long-term sequelae? The complete guideline on which this summary is based is available as an online data supplement to this article.

Methods: We systematically reviewed the literature from 1955 to June 2012 for pertinent evidence. We assessed evidence for quality and synthesized into conclusions using a modified Grading of Recommendations Assessment, Development and Evaluation process. We used a modified Delphi process to develop recommendations.

Results: Specific risk factors can increase or decrease concussion risk. Diagnostic tools to help identify individuals with concussion include graded symptom checklists, the Standardized Assessment of Concussion, neuropsychological assessments, and the Balance Error Scoring System. Ongoing clinical symptoms, concussion history, and younger age identify those at risk for postconcussion impairments. Risk factors for recurrent concussion include history of multiple concussions, particularly within 10 days after initial concussion. Risk factors for chronic neurobehavioral impairment include concussion exposure and *APOE* ε4 genotype. Data are insufficient to show that any intervention enhances recovery or diminishes long-term sequelae postconcussion. Practice recom-

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www.natajournals.org

National Athletic Trainers' Association Position Statement: Management of Sport Concussion

Steven P. Broglio, PhD, ATC*; Robert C. Cantu, MD†; Gerard A. Gioia, PhD‡; Kevin M. Guskiewicz, PhD, ATC, FNATA, FACSM§; Jeffrey Kutcher, MD*; Michael Palm, MBA, ATC‖; Tamara C. Valovich McLeod, PhD, ATC, FNATA¶

*University of Michigan, Ann Arbor; †Department of Surgery, Emerson Hospital, Concord, MA; ‡Division of Pediatric Neuropsychology, Children's National Medical Center, Washington, DC; §Department of Exercise and Sport Science, University of North Carolina, Chapel Hill; ‖Athletico Physical Therapy, Oak Brook, IL; ¶Athletic Training Program, A.T. Still University, Mesa, AZ

Objective: To provide athletic trainers, physicians, and other health care professionals with best-practice guidelines for the management of sport-related concussions.

Background: An estimated 3.8 million concussions occur each year in the United States as a result of sport and physical activity. Athletic trainers are commonly the first medical providers available onsite to identify and evaluate these injuries.

Recommendations: The recommendations for concussion management provided here are based on the most current research and divided into sections on education and prevention, documentation and legal aspects, evaluation and return to play, and other considerations.

Key Words: mild traumatic brain injuries, pediatric concussions, education, assessment, evaluation, documentation

Despite a significant increase in research dedicated

concussion management. They are typically the first

American Medical Society for Sports Medicine position statement: concussion in sport

Kimberly G Harmon,[1] Jonathan A Drezner,[1] Matthew Gammons,[2] Kevin M Guskiewicz,[3] Mark Halstead,[4] Stanley A Herring,[1] Jeffrey S Kutcher,[5] Andrea Pana,[6] Margot Putukian,[7] William O Roberts[8]

Endorsed by the National Trainers' Athletic Association and the American College of Sports Medicine

[1]Department of Family Medicine, for Stanley Herring Department of Physical Medicine and Rehabilitation, University of Washington, Seattle, Washington, USA
[2]Vermont Orthopaedic Clinic, Rutland, Vermont, USA
[3]Sports Medicine Research Laboratory, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA
[4]Department of Pediatrics, Washington University, St. Louis, Missouri, USA
[5]Department of Neurosport, University of Michigan, Ann Arbor, Michigan, USA
[6]University of Texas, Austin, Texas, USA
[7]Department of Athletic Medicine, Princeton University, Princeton, New Jersey, USA
[8]Department of Family Medicine and Community Health, University of Minnesota, St Paul, Minneapolis, USA

Correspondence to
Dr Kimberly G Harmon, University of Washington, Box 354410, Seattle, Washington, USA; kharmon@u.washington.edu

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Revised 30 October 2012
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ABSTRACT

Purpose of the statement

▶ To provide an evidence-based, best practises summary to assist physicians with the evaluation and management of sports concussion.
▶ To establish the level of evidence, knowledge gaps and areas requiring additional research.

Importance of an AMSSM statement

▶ Sports medicine physicians are frequently involved in the care of patients with sports concussion.
▶ Sports medicine physicians are specifically trained to provide care along the continuum of sports concussion from the acute injury to return-to-play (RTP) decisions.
▶ The care of athletes with sports concussion is ideally performed by healthcare professionals with specific training and experience in the assessment and management of concussion. Competence should be determined by training and experience, not dictated by specialty.
▶ While this statement is directed towards sports medicine physicians, it may also assist other physicians and healthcare professionals in the care of patients with sports concussion.

Definition

▶ Concussion is defined as a traumatically induced transient disturbance of brain function and involves a complex pathophysiological process. Concussion is a subset of mild traumatic brain injury (MTBI) which is generally self-limited and at the less-severe end of the brain injury spectrum.

Pathophysiology

▶ Animal and human studies support the concept of postconcussive vulnerability, showing that a second blow before the brain has recovered results in worsening metabolic changes within the cell.
▶ Experimental evidence suggests the concussed brain is less responsive to usual neural activation and when premature cognitive or physical activity occurs before complete recovery the brain may be vulnerable to prolonged dysfunction.

Incidence

▶ It is estimated that as many as 3.8 million concussions occur in the USA per year during competitive sports and
▶ In sports with similar playing rules, the reported incidence of concussion is higher in female athletes than in male athletes.
▶ Certain sports, positions and individual playing styles have a greater risk of concussion.
▶ Youth athletes may have a more prolonged recovery and are more susceptible to a concussion accompanied by a catastrophic injury.
▶ Preinjury mood disorders, learning disorders, attention-deficit disorders (ADD/ADHD) and migraine headaches complicate diagnosis and management of a concussion.

Diagnosis of concussion

▶ Concussion remains a clinical diagnosis ideally made by a healthcare provider familiar with the athlete and knowledgeable in the recognition and evaluation of concussion.
▶ Graded symptom checklists provide an objective tool for assessing a variety of symptoms related to concussions, while also tracking the severity of those symptoms over serial evaluations.
▶ Standardised assessment tools provide a helpful structure for the evaluation of concussion, although limited validation of these assessment tools is available.

'Sideline' evaluation and management

▶ Any athlete suspected of having a concussion should be stopped from playing and assessed by a licenced healthcare provider trained in the evaluation and management of concussions.
▶ Recognition and initial assessment of a concussion should be guided by a symptoms checklist, cognitive evaluation (including orientation, past and immediate memory, new learning and concentration), balance tests and further neurological physical examination.
▶ While standardised sideline tests are a useful framework for examination, the sensitivity, specificity, validity and reliability of these tests among different age groups, cultural groups and settings is largely undefined. Their practical usefulness with or without an individual baseline test is also largely unknown.
▶ Balance disturbance is a specific indicator of a concussion, but not very sensitive. Balance testing on the sideline may be substantially different than baseline tests because of differences in shoe/cleat-type or surface, use of

Common Themes

- Symptom checklist/ assessment tools
- Monitor and assess symptom resolution
- More conservative management with children versus adults
- Allow for cognitive rest through academic adjustments/ graduated re-entry plan
- Asymptomatic prior to returning to physical activity
- Prevention/ Education
- Communication between parties

* Themes listed above are referenced in more than one of the following position statement papers/ guidelines: AAN, NATA, 4th Concensus Statement, NASN, and AMSSM. The degree to which each of these statements is discussed varies between documents and similarities may be found in other topic areas. It is recommended that the orginial documents be reviewed.

Journal of Athletic Training 2010;45(5):492–498

www.nata.org/jat

Supporting the Student-Athlete's Return to the Classroom After a Sport-Related Concussion

Neal McGrath, PhD

Sports Concussion New England, Brookline, MA

Objective: This article provides a framework for school athletic trainers to use in advising colleagues about the health and academic needs of student-athletes presenting with concussions.

Background: Management of sport-related concussions has been an area of growing concern for school athletic programs. Recent work in this area has highlighted significant risks for student-athletes presenting with these mild traumatic brain injuries.

Description: Topics covered include general teaching points for the athletic trainer to use with school colleagues. An integrated model for school management of sport concussion injuries is presented that includes involvement of the student's athletic trainer, school nurse, guidance counselor, teachers, social worker, psychologist, physicians, and parents.

Clinical Advantages: Academic accommodations for specific postconcussion symptoms are proposed that may help the student-athlete strike an optimum balance between rest and continued academic progress during recovery.

Key Words: athletic injuries, mild traumatic brain injuries, academic accommodations, school concussion programs

Athletic trainers (ATs) have devoted increasing attention to the management of sport concussions among student-athletes in recent years as researchers have provided better understanding of the risks of these injuries,[1–3] as new assessment tools have been developed,[4–7] and as consensus has begun to emerge among sports medicine professionals regarding best clinical practices.[8–12] Working in school settings under the supervision of their team physicians, ATs usually have the primary responsibility for day-to-day student-athlete but also for one's school colleagues. Several key teaching points may be useful to help other staff who will be interacting with the recovering student-athlete.

Concussion Incidence

Although sport concussions account for fewer than 10% of total injuries attended to by ATs,[13] coaches should expect seasonal rates of up to 5% to 10% among athletes

School and the Concussed Youth: Recommendations for Concussion Education and Management

Maegan D. Sady, PhD[a,*], Christopher G. Vaughan, PsyD[a,b,c], Gerard A. Gioia, PhD[a,b,c]

KEYWORDS

• Concussion • Mild traumatic brain injury • Student-athlete
• Student • School • Accommodations • Management

Learning is the centerpiece of child and adolescent development. Children's organ of learning is their brain; any adverse event that impairs the brain's functioning, temporarily or permanently, poses a significant threat to learning. Traumatic brain injury (TBI) of any severity is an adverse event that can threaten the developing child's future ability to learn. Although more severe forms of TBI may be readily recognized as a threat, greater attention is being paid now to both short- and long-term effects of TBI at the milder end of the spectrum.[1] Recent advances in concussion research have provided clinicians with numerous means to recognize and assess mild TBI, commonly known as concussion. It is now widely recognized that neurometabolic

Importance of 'Return-to-Learn' in Pediatric and Adolescent Concussion

Christina L. Master, MD; Gerard A. Gioia, PhD; John J. Leddy, MD; and Matthew F. Grady, MD

The concept of "return-to-play" after concussion is familiar to pediatricians who routinely care for injured student-athletes. Premature return-to-play of a student-athlete who is still injured from a concussion may result in more severe and potentially long-lasting deficits.[1]

In contrast, "return-to-learn" plans for student-athletes have not received as much attention, perhaps because so much regarding concussion awareness comes from lay reports of professional athletes who play a sport for their livelihood, as compared with pediatric and adolescent-aged athletes for whom school is their primary "work."

CME EDUCATIONAL OBJECTIVES

1. Prescribe physical and cognitive rest for pediatric and adolescent concussion.
2. Implement a gradual "return-to-learn" plan for student-athletes after concussion.
3. Communicate specific school-based accommodations to facilitate a gradual reintegration to full school activities.

Psychiatry & Behavioral Sciences; The George Washington University School of Medicine, Division of Pediatric Neuropsychology. John J. Leddy, MD, is an Associate Professor of Clinical Orthopedics, the Associate Director of University Sports Medicine, and Concussion Clinic Director, State University of New York at Buffalo, UB Orthopaedics & Sports Medicine.

American Academy of Pediatrics
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CLINICAL REPORT

Returning to Learning Following a Concussion

abstract

FREE

Following a concussion, it is common for children and adolescents to experience difficulties in the school setting. Cognitive difficulties, such as learning new tasks or remembering previously learned material, may pose challenges in the classroom. The school environment may also increase symptoms with exposure to bright lights and screens or noisy cafeterias and hallways. Unfortunately, because most children and adolescents look physically normal after a concussion, school officials often fail to recognize the need for academic or environmental adjustments. Appropriate guidance and recommendations from the pediatrician may ease the transition back to the school environment and facilitate the recovery of the child or adolescent. This report serves to provide a better understanding of possible factors that may contribute to difficulties in a school environment after a concussion and serves as a framework for the medical home, the educational home, and the family home to guide the student to a successful and safe return to learning. *Pediatrics* 2013;132:948–957

Mark E. Halstead, MD, FAAP, Karen McAvoy, PsyD, Cynthia D. Devore, MD, FAAP, Rebecca Carl, MD, FAAP, Michael Lee, MD, FAAP, Kelsey Logan, MD, FAAP, Council on Sports Medicine and Fitness, and Council on School Health

KEY WORDS

head injury, mild traumatic brain injury, pediatrics, return to school, academics, return to learn, cognitive deficits

ABBREVIATIONS

AT—certified athletic trainer
FERPA—Family Educational Rights and Privacy Act
HIPAA—Health Insurance Portability and Accountability Act
IEP—individualized education plan
IDEA—Individuals with Disabilities Education Act
RTL—return to learn

DEFINITIONS

- Individualized education plan (IEP): a formalized educational plan protected under the Individuals with Disabilities Education Act (IDEA; Pub L No. 101-476, 1990), known commonly as special education, that provides for classification or coding of a student under 1 of 13 federally designated categories and allowances for modification of regular education without penalty to the student.

THE INTERNATIONAL JOURNAL OF
CLINICAL PRACTICE

PERSPECTIVE

THE INTERNATIONAL JOURNAL OF
CLINICAL PRACTICE

Editor's Choice

Principles for return to learn after concussion

The 2012 Zurich Consensus Statement (1) recommends a graduated protocol for return to play following concussion, beginning with rest and followed by increasing levels of physical activity. With the growing recognition that both physical and mental exertion can aggravate concussion symptoms (2,3) and perhaps prolong recovery (4,5), the Zurich statement also highlights the importance of cognitive rest and the need to limit exertion with activities of daily living that may exacerbate symptoms. In children and adolescents, this would include the modification of school attendance and activities to avoid provocation of symptoms. Thus, it is important to consider developing principles and guidance for resuming academic activities after concussion.

Research on the academic effects of concussion has generally shown no adverse long-term outcomes (6,7). In most cases, concussion symptoms and cognitive difficulties will improve in a matter of days (8). However, problems can persist for weeks or months, causing significant academic disruption. There are limited empirical data specifically addressing the academic effects of concussion. Medical professionals who diagnose and treat concussion will often make recommendations to a student's school so as to try to reduce symptoms and foster optimal recovery. A number of authors have developed recommendations for academic re-entry and accommodations after concussion (4,9–14) and the Centers for Disease Control and Prevention offers 'Heads Up for

activity, at which point a gradual return to school is suggested. Master et al. propose a six step plan that includes: a prescription for physical and cognitive rest, a gradual reintroduction of cognitive activity, homework at home before schoolwork at school, school re-entry, gradual reintegration into school and full return to school. They introduce the concept of subsymptom threshold for cognitive activity and the strategy of pacing, or gradually increasing cognitive activity while staying below the student's symptom threshold (9). In this article, we build on their plan and attempt to integrate aspects of other return to learn approaches. While a standard graduated protocol may work well for return to play, as students return to learn after a concussion a more flexible approach may be needed for each individual student.

We summarise relevant background literature in Data S1. We propose principles based on this background literature. These principles are meant to help inform the adjustment of an individual student to his/her particular school environment. We then present an initial approach to be further developed and refined and discuss the emerging consensus on return to learn.

As can be seen in Data S1, the current literature is suggestive of a complex and dynamic set of injury mechanisms at work in the brain after concussion associated with a window of dysfunction and

Common Themes

- Supports developed to prevent re-injury/ over-exertion
- Initial period of rest
- Individualized approach
- Gradual increase in cognitive activity
- Team approach
- Concussion education

* Themes listed above are referenced in more than one of the previously referenced articles. The degree to which each of these statements is discussed varies between documents and similarities may be found in other topic areas. It is recommended that the orginial documents be reviewed.

Supporting Students in School

Notify Appropriate Individuals when an Injury has Occurred

Teachers

Counselor/ Psych

Parent/ Guardian

Attendance, Brain Injury Team, others???

School Nurse/ Health Aid

Coach/ AT

Student Support

- Communicate with student, school staff, athletics, parents, medical provider etc.
- Remove from physical activity to prevent re-injury
- Assess symptoms & provide academic adjustments (adjustments that are relevant, reasonable & flexible)

Student Support

Why?

- mental/cognitive strain on the brain during the initial recovery from the concussion will cause an exacerbation of the symptoms and can hamper/delay recovery of the concussion

(Majerske et al., 2008 & Brown, Mannix, et al. 2014).

Concussion Signs and Symptoms

Checklist

Heads Up to Schools: KNOW YOUR CONCUSSION ABCs

Assess the situation | Be alert for signs and symptoms | Contact a health care professional

Student's Name: _____ **Student's Grade:** _____ **Date/Time of Injury:** _____

Where and How Injury Occurred: *(Be sure to include cause and force of the hit or blow to the head.)* _____

_____

Description of Injury: *(Be sure to include information about any loss of consciousness and for how long, memory loss, or seizures following the injury, or previous concussions, if any. See the section on Danger Signs on the back of this form.)* _____

_____

_____

DIRECTIONS:

Use this checklist to monitor students who come to your office with a head injury. Students should be monitored for a minimum of 30 minutes. Check for signs or symptoms when the student first arrives at your office, fifteen minutes later, and at the end of 30 minutes.

Students who experience *one or more* of the signs or symptoms of concussion after a bump, blow, or jolt to the head should be referred to a health care professional with experience in evaluating for concussion. For those instances

OBSERVED SIGNS	0 MINUTES	15 MINUTES	30 MINUTES	☐ MINUTES Just prior to leaving
Appears dazed or stunned				
Is confused about events				
Repeats questions				
Answers questions slowly				
Can't recall events *prior* to the hit, bump, or fall				
Can't recall events *after* the hit, bump, or fall				
Loses consciousness (even briefly)				
Shows behavior or personality changes				
Forgets class schedule or assignments				
PHYSICAL SYMPTOMS				
Headache or "pressure" in head				
Nausea or vomiting				
Balance problems or dizziness				
Fatigue or feeling tired				
Blurry or double vision				

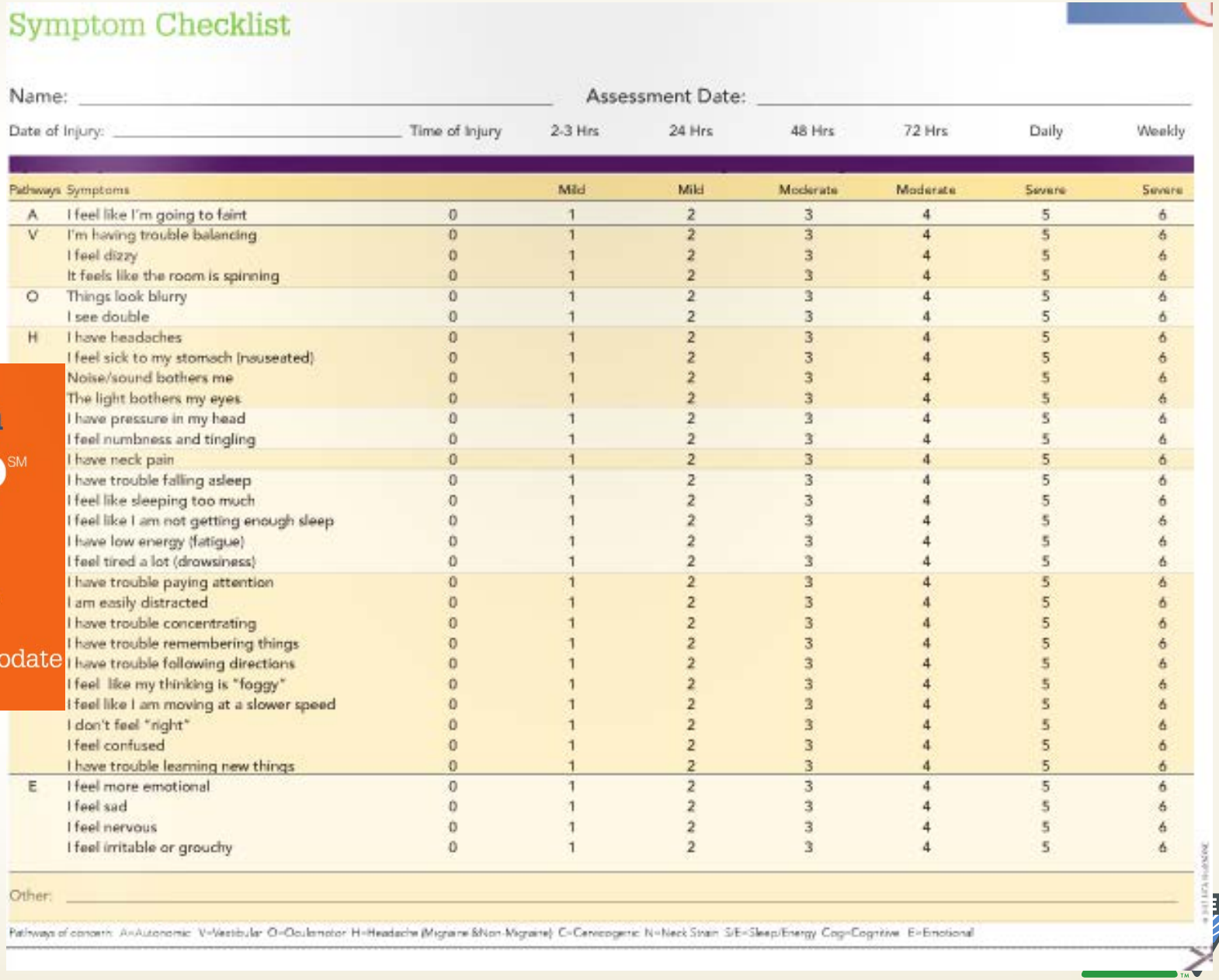
Speak a Common Language:

If symptoms are the only way to know when and how the concussion is getting better, then it helps that the student, family, school nurse, teachers, counselors, coaches, certified athletic trainers, teachers, other school personnel and health care provider all speak the same language. Since a report of symptoms can be quite subjective, it is often helpful to use a rating scale. The rating scale can act as a common language for everyone involved in managing the concussion. Most concussion management programs now subscribe to a 0 to 6 rating scale (0 = not present; 6 = most severe experience of the symptom).

Symptom Checklist
(sample form)

Symptoms:	0 Mild	1	2	3	4	5	6 Severe
Headache							
Nausea							
Vomiting							
Balance problems							
Dizziness							
Fatigue							
Trouble falling asleep							
Sleeping more than usual							
Sleeping less than usual							
Drowsiness							
Sensitivity to light							
Sensitivity to noise							
Irritability							
Sadness							
Nervous/anxious							
Feeling More emotional							
Numbness or tingling							
Feeling like in a fog							
Difficulty remembering							
Difficulty concentrating							
Visual problems							
Other							

The Graded Symptom Checklist is recommended by the National Association of Athletic Trainers



Symptom Checklist

Name: _____ Assessment Date: _____

Date of Injury: _____ Time of Injury 2-3 Hrs 24 Hrs 48 Hrs 72 Hrs Daily Weekly

Pathways	Symptoms		Mild	Mild	Moderate	Moderate	Severe	Severe
A	I feel like I'm going to faint	0	1	2	3	4	5	6
V	I'm having trouble balancing	0	1	2	3	4	5	6
	I feel dizzy	0	1	2	3	4	5	6
	It feels like the room is spinning	0	1	2	3	4	5	6
O	Things look blurry	0	1	2	3	4	5	6
	I see double	0	1	2	3	4	5	6
H	I have headaches	0	1	2	3	4	5	6
	I feel sick to my stomach (nauseated)	0	1	2	3	4	5	6
	Noise/sound bothers me	0	1	2	3	4	5	6
	The light bothers my eyes	0	1	2	3	4	5	6
	I have pressure in my head	0	1	2	3	4	5	6
	I feel numbness and tingling	0	1	2	3	4	5	6
	I have neck pain	0	1	2	3	4	5	6
	I have trouble falling asleep	0	1	2	3	4	5	6
	I feel like sleeping too much	0	1	2	3	4	5	6
	I feel like I am not getting enough sleep	0	1	2	3	4	5	6
	I have low energy (fatigue)	0	1	2	3	4	5	6
	I feel tired a lot (drowsiness)	0	1	2	3	4	5	6
	I have trouble paying attention	0	1	2	3	4	5	6
	I am easily distracted	0	1	2	3	4	5	6
	I have trouble concentrating	0	1	2	3	4	5	6
	I have trouble remembering things	0	1	2	3	4	5	6
	I have trouble following directions	0	1	2	3	4	5	6
	I feel like my thinking is "foggy"	0	1	2	3	4	5	6
	I feel like I am moving at a slower speed	0	1	2	3	4	5	6
	I don't feel "right"	0	1	2	3	4	5	6
	I feel confused	0	1	2	3	4	5	6
	I have trouble learning new things	0	1	2	3	4	5	6
E	I feel more emotional	0	1	2	3	4	5	6
	I feel sad	0	1	2	3	4	5	6
	I feel nervous	0	1	2	3	4	5	6
	I feel irritable or grouchy	0	1	2	3	4	5	6

Other: _____

Pathways of concern: A=Autonomic V=Vestibular O=Oculomotor H=Headache (Migraine &Non-Migraine) C=Cervicogenic N=Neck Strain S/E=Sleep/Energy Cog=Cognitive E=Emotional

Center for Concussion

REAP℠

Remove/Reduce
Educate
Adjust/Accommodate
Pace

Acute Concussion Evaluation (ACE)
Care Plan

Gerard Gioia, PhD[1] & Micky Collins, PhD[2]
[1]Children's National Medical Center
[2]University of Pittsburgh Medical Center

Patient Name:_____
DOB: _____ Age:_____
Date:_____ ID/MR#_____
Date of Injury:_____

You have been diagnosed with a concussion (also known as a mild traumatic brain injury). This personal plan is based on your symptoms and is designed to help speed your recovery. Your careful attention to it can also prevent further injury.

You should not participate in any high risk activities (e.g., sports, physical education (PE), riding a bike, etc.) if you still have any of the symptoms below. It is important to limit activities that require a lot of thinking or concentration (homework, job-related activities), as this can also make your symptoms worse. If you no longer have any symptoms and believe that your concentration and thinking are back to normal, you can slowly and carefully return to your daily activities. Children and teenagers will need help from their parents, teachers, coaches, or athletic trainers to help monitor their recovery and return to activities.

Today the following symptoms are present (circle or check). ____**No reported symptoms**

Physical		Thinking	Emotional	Sleep
Headaches	Sensitivity to light	Feeling mentally foggy	Irritability	Drowsiness
Nausea	Sensitivity to noise	Problems concentrating	Sadness	Sleeping more than usual
Fatigue	Numbness/Tingling	Problems remembering	Feeling more emotional	Sleeping less than usual
Visual problems	Vomiting	Feeling more slowed down	Nervousness	Trouble falling asleep
Balance Problems	Dizziness			

RED FLAGS: Call your doctor or go to your emergency department if you suddenly experience any of the following

Headaches that worsen	Look very drowsy, can't be awakened	Can't recognize people or places	Unusual behavior change
Seizures	Repeated vomiting	Increasing confusion	Increasing irritability
Neck pain	Slurred speech	Weakness or numbness in arms or legs	Loss of consciousness

— SCHOOL VERSION —

Returning to Daily Activities

1. Get lots of rest. Be sure to get enough sleep at night- no late nights. Keep the same bedtime weekdays and weekends.
2. Take daytime naps or rest breaks when you feel tired or fatigued.
3. **Limit physical activity as well as activities that require a lot of thinking or concentration. These activities can make symptoms worse.**
   - Physical activity includes PE, sports practices, weight-training, running, exercising, heavy lifting, etc.
   - Thinking and concentration activities (e.g., homework, classwork load, job-related activity).

Wong-Baker FACES® Pain Rating Scale

0	2	4	6	8	10
No Hurt	Hurts Little Bit	Hurts Little More	Hurts Even More	Hurts Whole Lot	Hurts Worst

Gradually increase cognitive activity as tolerated until student returns to pre-injury level of functioning.

Return to Learn before Return to Play

"It was agreed by the panel that no return to sport or activity should occur before the child/adolescent athlete has managed to return to school successfully".

McCrory, P., & et al. (2013). Consensus statement on concussion in sport: The 4th international conference on concussion held in Zurich, November 2012. *British Journal of Sports Medicine, 47, 250-258.*

Graduated Return-to-Play

Legislation

Stage	Activity	Functional Exercise	Objective of Stage
1	No physical activity as long as there are symptoms	Complete rest	Recovery
*******	Must be symptom-free for 24 hours before starting Step 2	**********	**********
2	Light aerobic activity	Walking. Swimming, stationary cycling-keeping intensity <70MPHR, no resistance training	Increase heart rate
3	Sport-Specific exercise	Skating/running drills, 20-30 minutes – no weightlifting, no head contact.	Add movement
4	Non-contact training drills	Progression to more complex training drills; may start progressive resistance training.	Exercise, coordination, cognitive load
5	Full-contact practice	Following medical clearance, participate in normal training activities; full exertion	Restore confidence, assessment of functional skills by coaching staff
6	Return to play	Return to normal activity	

Consensus statement on concussion in sport – The 4th International Conference on concussion in sport, held in Zurich, November 2012

How to get started...

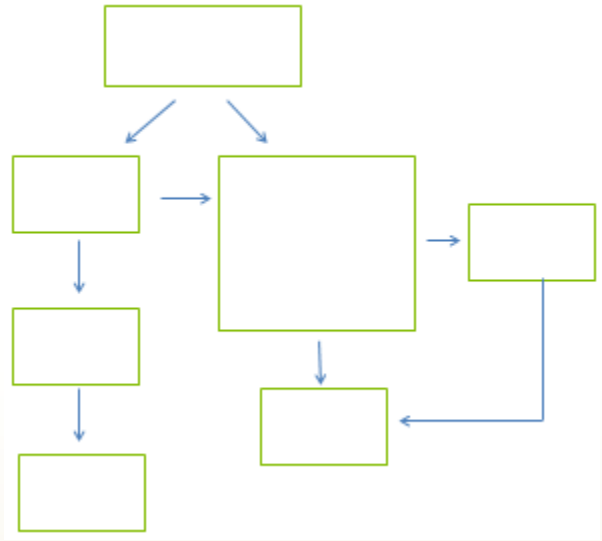
Identify Interested Staff

- **Who is currently involved in concussion management, has an interest in concussion management, and/or current roles are directly related to the work?**

- **Do you have administrative support?** (explain the purpose and identified need; effectiveness in schools; consistent with other processes/values, process- is it adaptable? pilot? etc.)

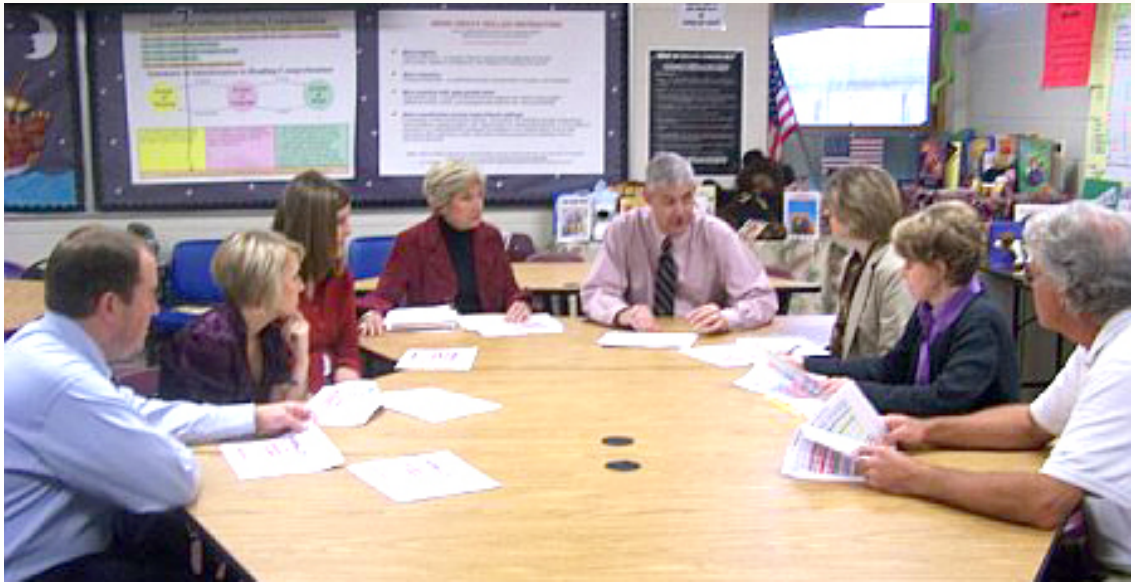
Determine what is currently in place in your district…

- **What protocol/ processes are currently in place for athletes? For all students? For support within academics?**



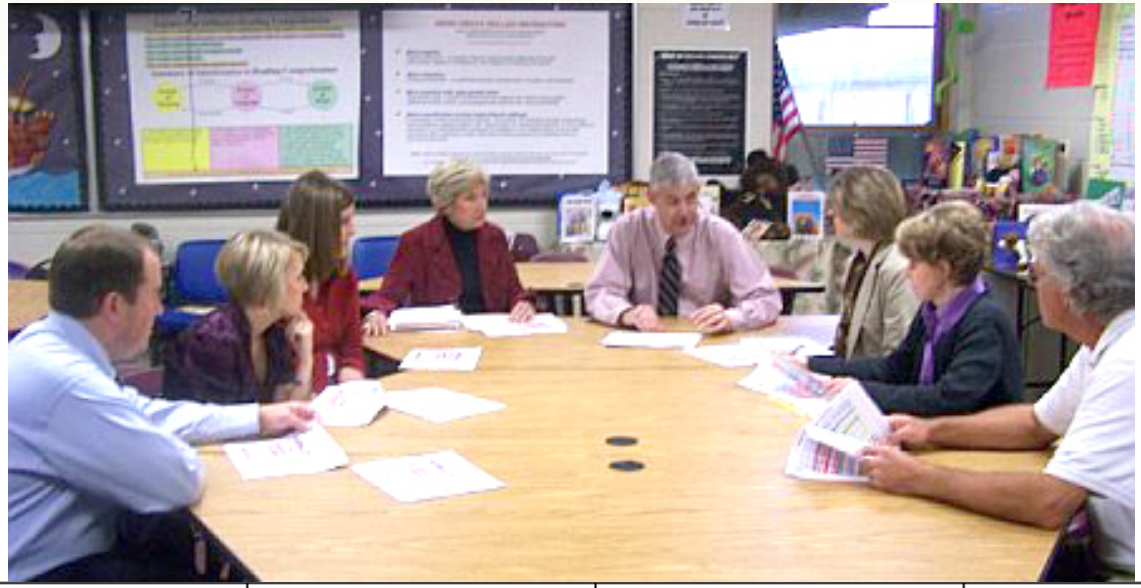
Determine what is currently in place in your district…

- Are there any concerns regarding how concussions are currently being managed?
- What is working well?
- Are there other processes already in place within the school that can easily lend themselves to concussion protocol?
- What are the current job responsibilites of staff and how can they be applied to supporting students who have sustained a concussion?



	Program Need Lowest 1 to Highest 10	Factors that can affect implementation	Factors that support implementation
Staff Education			
Student/ Parent Education			
Concussion Management Plan- all students			
- academic support			
- all grade levels			
- athletic/ academic coordination			
- process to "check in" with students			
- notification to parents/ parent notification to school			
- school forms			

Adapted from Joyce Fetro, PhD, CHES



	Program Need Lowest 1 to Highest 10	Factors that can affect implementation	Factors that support implementation
Staff Education			
Student/ Parent Education			
Concussion Management Plan- all students	**10**	-staff time	-identified need -administrative support
- academic support			
- all grade levels			
- athletic/ academic coordination			
- process to "check in" with students			
- notification to parents/ parent notification to school			

Adapted from Joyce Fetro, PhD, CHES

Steps to Implementation

- **Define purpose/ goals based on "Program Need"** (what will you focus on?)
- **Develop concussion management process** (process, forms, educational tools, etc.)
- **Education**
- **Implementation**

Assessment

- **Meet periodically to assess effectiveness/ obtain feedback.**
  (more frequent closer to implementation)

	What is Working?	What can be improved?	How can we address challenges?
Staff Education			
Overall process			
Providing academic support			
Notification process			
"check in" w/ students			
School forms (teacher feedback)			
Athletic/ academic coordination			

Adapted from Joyce Fetro, PhD, CHES

Assessment

- **Meet periodically to assess effectiveness/ obtain feedback.**
  (more frequent closer to implementation)

	What is Working?	What can be improved?	How can we address challenges?
Staff Education			
Overall process			
Providing academic support			
Notification process			
"check in" w/ students			
School forms (teacher feedback)	-staff appreciate being informed -teachers have great feedback	-additional information on how to support students -do not always receive form	-additional training specific to academic adjustments -provide information by e-mail instead of mailbox
Athletic/ academic coordination			

Adapted from Joyce Fetro, PhD, CHES

Understand Best Practices

Summary

- Become familiar with Best Practices.
- Seek out information
  - Learn from others
  - Learn from co-workers/ current processes
- Identify need and prioritize.
- Educate staff, students, and families.
- Evaluate, make adjustments, initiate other tasks.
- Stay connected.

Colorado Department of Education Resources

Stay Connected:

Concussion Action Team Teleconference Meetings: Monthly conference calls open to all school professionals across Colorado as an opportunity to discuss challenges and share information related to concussion management.

Brain Injury and Concussion Listservs: Receive information on upcoming events, and educational opportunities.

For more information or to join contact:

CDE Health and Wellness- Brain Injury
303-866-6867