TEAM KENTUCKY®

CABINET FOR HEALTH AND FAMILY SERVICES

REAP®

Remove/Reduce
Educate
Adjust/Accommodate
Pace

Authored by Karen McAvoy, PsyD

Third Edition 2018

How every family, school and medical professional can implement a Community-Based Concussion Management Program

REAP® The Benefits of Good Concussion Management

In November of 2013, the American Academy of Pediatrics released a Clinical Report on Returning to Learning Following a Concussion (PEDIATRICS Volume 132, Number 5, November 2013) "based upon expert opinion and adapted from a program in Colorado". The program referenced in the AAP Clinical Report is REAP!

The Kentucky Cabinet for Health and Family Services, in collaboration with the Traumatic Brain Injury Trust Fund, the Brain Injury Alliance of Kentucky, and multiple statewide partners is pleased to announce the Kentucky REAP Concussion Management Program. The REAP approach was first developed for the Rocky Mountain Children's Center for Concussion. The core focus of REAP promotes a team approach to coordinate care for students who have suffered a concussion. REAP provides the most up-to-date practice guidelines based on the national practice guidelines consensus statement by experts in concussion management. As understanding of concussion management has grown in team sports, many schools have developed programs to support returning to play to avoid second impact syndrome deaths or impairment. Many students immediately return to school following the concussion but struggle academically during the healing phase of a concussion.

REAP assists family, teachers, coaches, athletic trainers, therapists, and medical professionals establish a return-to-learn plan to assist students suffering a concussion as their brain heals from the trauma. This approach is instrumental in lessening the frustration upon student/athletes, families, and their teachers by providing commonsense guidance for navigating a plan for learning. Printing and distributing REAP is one important way in which the Cabinet for Health and Family Services supports your community.

The Cabinet has supported Kentuckians with brain injuries for many years and welcomes the opportunity to provide more inclusive communities. REAP allows us to provide a safety net for Kentucky's children and youth student-athletes. Inclusive communities are more resilient communities, and this contributes to our vision of a commonwealth where every Kentuckian reaches their full human potential, and all communities thrive.

Secretary Eric Friedlander
Cabinet for Health, and Family Services

REAP is authored by: Karen McAvoy, PsyD

Third Edition 2018

REAP,® which stands for **Remove/Reduce • Educate • Adjust/Accommodate • Pace,** is a **community-based model for Concussion Management** that was developed in Colorado. The early origins of REAP stem from the dedication of one typical high school and its surrounding community after the devastating loss of a freshman football player to "Second Impact Syndrome" in 2004. The author of REAP, Dr. Karen McAvoy, was the psychologist at the high school when the tragedy hit. As a School Psychologist, Dr. McAvoy quickly pulled together various team members at the school (Certified Athletic Trainer, School Nurse, Counselors, Teachers and Administrators) and team members outside the school (Students, Parents and Healthcare Professionals) to create a safety net for all students with concussion. Under Dr. McAvoy's direction from 2004 to 2009, the interdisciplinary team approach evolved from one school community to one entire school district. Funded by an education grant from MINDSOURCE Brain Injury Network in 2009, Dr. McAvoy sat down and wrote up the essential elements of good interdisciplinary team concussion management and named it REAP thereby creating a model for concussion management that can be utlilized by any community.

The benefits of good concussion management spelled out in REAP are known throughout communities in Colorado, nationally and internationally. REAP has been customized and personalized for various states and continues to be the "go-to" guide from the emergency department to school district to the office clinic waiting room.

Download a digital version of this publication at **REAPconcussion.com**

Endorsed by:

NATIONAL ASSOCIATION OF STATE HEAD INJURY ADMINISTRATORS

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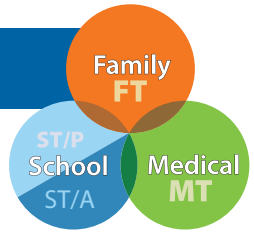
Community-Based, Interdisciplinary Concussion Management Team



How to use this Manual

Because it is important for each member of the Interdisciplinary Concussion Management Team to know and understand their part and the part of other members, this manual was written for all of the teams. As information is especially pertinent to a certain group, it is noted by a color.

» Pay close attention to the sections in ORANGE

FT	Family Team	Student, Parents; may include Friends, Grandparents, Primary Caretakers, Siblings and others…	For more specific information, download parent fact sheets from the various "Heads Up" Toolkits on the CDC website: https://www.cdc.gov/headsup/parents/index.html

» Pay close attention to the sections in LIGHT BLUE

ST/P	School Team Physical	Coaches, Certified Athletic Trainers (AT), Physical Education Teachers, Playground Supervisors, School Nurses and others…	For more specific information, download the free **"Heads Up: Concussion in High School Sports or Concussion in Youth Sports"** from the CDC website: https://www.cdc.gov/headsup/highschoolsports/index.html

» Pay close attention to the sections in DARKER BLUE

ST/A	School Team Academic	Teachers, Counselors, School Psychologists, School Social Workers, Administrators, School Neuropsychologists and others…	For more specific information, download the free "Heads Up to Schools: Know Your Concussion ABCs" from the CDC website: https://www.cdc.gov/headsup/schools/index.html

» Pay close attention to the sections in GREEN

MT	Medical Team	Emergency Department, Primary Care Providers, Nurses, Concussion Specialists, Neurologists, Clinical Neuropsychologists & others…	For more specific information, download the free **"Heads Up: Brain Injury in your Practice"** from the CDC website: https://www.cdc.gov/headsup/providers/index.html

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Common Concussion Myths...

TRUE or FALSE?

Loss of consciousness (LOC) is necessary for a concussion to be diagnosed.

False! In 2012, approximately 430,000 Emergency Department (ED) visits resulted from sports and recreation-related mild traumatic brain injuries (mTBI).[1] Most concussions do not involve a loss of consciousness. While many students receive a concussion from sports-related activities, numerous other concussions occur from non-sports related activities – from bicycle and playground accidents.

TRUE or FALSE?

A concussion is just a "bump on the head."

False! Actually, a concussion is a traumatic brain injury (TBI). The symptoms of a concussion can range from mild to severe and may include: confusion, disorientation, memory loss, slowed reaction times, emotional reactions, headaches and dizziness. You can't predict how severe a concussion will be or how long the symptoms will last at the time of the injury.

TRUE or FALSE?

A parent should awaken a child who falls asleep after a head injury.

False! Current medical advice is that it is not dangerous to allow a child to sleep after a hit to the head IF the child has been medically evaluated and more serious complications have been ruled out. Once a medical evaluation results in the diagnosis of concussion and not something more serious, then the best treatment is to allow the child to sleep.

TRUE or FALSE?

A concussion is usually diagnosed by neuroimaging tests (i.e. CT scan or MRI).

False! Concussions cannot be detected by neuroimaging tests: a concussion is a "functional" not "structural" injury. Concussions are typically diagnosed by careful examination of the signs and symptoms after the injury. Symptoms during a concussion are thought to be due to an ENERGY CRISIS in the brain cells. At the time of the concussion, the brain tries to protect itself by decreasing blood flow to injured areas. Because of the injury there is not enough "fuel" (sugar/glucose) delivery to keep brain cells (neurons) working normally – for playing and for thinking. Over time, this blood flow returns to normal as symptoms improve. While a CT scan or an MRI may be used after trauma to the head to look for bleeding or bruising in the brain, it will present as (be read as) "normal" with a concussion. A negative scan does not mean that a concussion did not occur.

Did You Know...

» **More than 70% of concussions resolve successfully** if managed well within the first four weeks post-injury.[2] REAP sees the first four weeks post-injury as a "window of opportunity" to maximize positive outcomes. Research shows that the average recovery time for a child/adolescent is about 28 days, slightly longer than the average recovery time for an adult.[3]

» **REAP works on the premise that a concussion is best managed by an Interdisciplinary Team** that includes: the Student/Athlete, the Family, various members of the School Team and the Medical Team. The unique perspective from each of these various teams is essential!

» **The first day of the concussion is considered Day One.** The first day of recovery also starts on Day One. REAP can help the Family, School and Medical Teams mobilize immediately to maximize recovery during the entire four week "window of opportunity."

Note from
Misty L. Agne, MA,
CCC-SLP, CBIST,
Frazier Rehabilitation
Institute

A successful transition back to school requires the communication and involvement of every member of the interdisciplinary team – parents, educators, healthcare professionals, and the student. Gaps in communication between the education and healthcare system can lead to suboptimal care for students recovering from concussion given the many factors that can influence recovery. Members of the team contribute a unique skill set and perspective on what is needed to foster a successful transition. Early and consistent monitoring of the student's academic success is vital to limit any long-term academic consequences. In many cases academic supports and adjustments are temporary. However, when long-term supports are needed, previously established partnerships can facilitate a faster implementation of service.

Message to Parents

To maximize your child's recovery from concussion, double up on the R's: REDUCE and REST! Insist that your child rest, especially for the first few days following the concussion and slightly cut back extra-curricular and social activities over the four week recovery period. Some symptoms of concussion can be so severe on the first day or two that your child may need to stay home from school. When your child returns to school, request that he/she be allowed to "sit out" of sports, recess and physical education classes. Work with your Interdisciplinary Concussion Management Team to determine when your child is ready to return to physical activity, recess and/or PE classes (see PACE).

Don't let your child convince you he/she will rest "later" (after the prom, after finals, etc.). Rest must happen immediately! The school team will help your child reduce their academic load [see Adjust/Accommodate]. However, it is your job to help to reduce sensory load at home. Advise your child/teen to:

- Avoid loud group functions (games, dances)
- Limit, (do not fully restrict) video games, text messaging, social media and computer screen time
- Limit, (do not fully restrict) reading and homework

A concussion will almost universally slow reaction time; therefore, driving should not be allowed pending medical approval or until a parent has made the effort to supervise driving again.

Plenty of sleep and quiet, restful activities after the concussion maximizes your child's chances for a great recovery!

When should your child go back to school? See page 8.

EVERY Member of Every Team is Important!

Every team has an essential part to play at certain stages of the recovery

First The School Team/Physical (coach, AT, playground supervisor) and/or the Family Team (parent) have a critical role in the beginning of the concussion as they may be the first to RECOGNIZE and IDENTIFY the concussion and REMOVE the student/athlete from play.

Second The Medical Team then has an essential role in DIAGNOSING the concussion and RULING-OUT a more serious medical condition.

Third For the next 1 to 4 weeks the Family Team and the School Team/Academic will provide the majority of the MANAGEMENT by REDUCING social/home and school stimulation.

Fourth When all FOUR teams decide that the student/athlete is 100% back to pre-concussion functioning, the Medical Team can approve the Graduated Return to Sport (RTS) steps. See the PACE page.

Finally When the student/athlete successfully completes the RTS steps, the Medical Team can determine final "clearance."

Throughout this book, the terms Return to School, Return to Learn, Return to Activity and Return to Sport are used distinctly and intentionally. However, because they all start with the words "Return to …", there is much confusion. These definitions will help:

Return to School is defined as the process of the student physically walking back into a school setting. The decision to send a child to school on any given day is directed by the parent and is dependent upon the student's ability to manage symptoms well enough to be physically and cognitively present in the classroom to listen and learn [See 'Adjust/Accommodate for Parents' on Page 8]

Return to Learn is defined as the process by which educators help students with concussion maximize learning while minimizing symptom flare-ups. A successful Return to Learn plan is directed by educators, especially general education teachers, who have knowledge and skill in differentiated instruction to meet the needs of all students regardless of medical, psychological, learning, behavioral or social conditions [See 'Adjust/Accommodate for Educators' on Page 9].

Return to Activity is defined as the process of encouraging a person with a concussion to begin to add in sub-symptom threshold levels of physical and cognitive activity WHILE still in the recovery phase. A gradual re-introduction of cognitive, social and cardio activity (safe aerobic activity under close supervision) has been found to be therapeutic.[4] Return to Activity differs from the progressive Graduated Return to Sport and it is not intended to take the place of the Graduated Return to Sport. Return to Activity happens prior to Graduated Return to Sport with the goal of contributing to asymptomatic status, thus allowing for the start of the Graduated Return to Sport. Widely applied, Return to Activity is a positive term used to encourage people recovering from concussion to stay engaged in their own physical, cognitive and emotional rehabilitation.

Graduated Return to Sport is the process of progressively returning athletes back to sport once they are 100% symptom-free [See 'PACE' on page 12].

An "Interdisciplinary Team" = Adults who provide multiple perspectives of the student/athlete AND who provide multiple sources of data to gauge recovery status

Who will be on the Family Team (FT)? Who from the family will watch, monitor and track the emotional and sleep/energy symptoms of the concussion and how will the Family Team communicate with the School and Medical Teams?

Who will be on the School Team/Physical (ST/P)? Who at the school will watch, monitor and track the physical symptoms of the concussion? Who is the ST/P Point Person?

Who will be on the School Team/Academic (ST/A)? Who at the school will watch, monitor and track the academic and emotional effects of the concussion? Who is the ST/A Point Person?

Who will be on the Medical Team (MT)? How will the MT get information from all of the other teams and who with the MT will be responsible for coordinating data and updates from the other teams?

» REAP suggests the following timeframe:

TEAM	Week 1	Week 2	Week 3 & Week 4
FT Family Team* Help child understand he/she must be a "honest partner" in the rating of symptoms	• Impose rest. • Assess symptoms daily – especially monitor sleep/energy and emotional symptoms.	• Continue to assess symptoms (at least 3X week or more as needed), monitor if symptoms are improving. • Continue to assess symptoms and increase/ decrease stimulation at home accordingly	• Continue with all assessments (at least 2X week or more as needed). • Continue to assess symptoms and increase/ decrease stimulation at home accordingly.
ST/P School Team/Physical Coach/AT/School Nurse (Assign 1 point person to oversee/ manage physical symptoms)	• REMOVE from all play/physical activities! • Assess physical symptoms daily, use objective rating scale. • AT: assess postural-stability (see NATA reference in RESOURCES). • School Nurse: monitor visits to school clinic. If symptoms at school are significant, contact parents and send home from school.	• Continue to assess symptoms (at least 3X week or more as needed). • AT: Continue postural-stability assessment, as needed. • School Nurse: Continue to monitor visits to school clinic. Work with student to manage symptoms by taking "pacing" and "strategic rest" breaks so student can ideally be at school daily for full days. See ADJUST/ ACCOMMODATE section.	• Continue with all assessments (at least 2Xweek or more as needed). • AT: Continue postural-stability assessment, as needed. • School Nurse: Continue to monitor visits to school clinic. Work with student to manage symptoms by taking "pacing" and "strategic rest" breaks so student can ideally be at school daily for full days. See ADJUST/ ACCOMMODATE section.
ST/A School Team/Academic Educators, School Psychologist, Counselor, Social Worker (Assign 1 point person to oversee and manage academic and emotional symptoms)	• REDUCE (do not eliminate) all cognitive demands. • 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. • Educate all teachers on the symptoms of concussion. • See ADJUST/ACCOMMODATE section.	• Continue to assess symptoms (at least 3X week or more as needed) and slowly increase/ decrease cognitive and academic demands accordingly. • Continue academic adjustments, as needed.	• Continue to assess symptoms (at least 2X week or more as needed) and increase/decrease cognitive and academic demands accordingly. • Continue academic adjustments, as needed. • Assess if longer term academic accommodations are needed (May need to consider a 504 Plan beyond 4+ weeks).
MT Medical Team	• Assess and diagnose concussion. • Assess for head injury complications, which may require additional evaluation and management. • Recommend return to school with academic adjustments once symptoms are improving and tolerable, typically within 48 to 72 hours. Do NOT hold students out of school until they are totally "symptom-free." • Educate student/athlete and family on the typical course of concussion and the need for rest with gradual re-integration of "activity" (school, home and social stimulation, light cardio exercise under the supervision of parent and/or physical therapist). • Monitor that symptoms are improving throughout Week 1 – not worsening in the first 48 to 72 hours.	• Continue to consult with school and family teams. • Follow-up medical check including: comprehensive history, neurologic exam, detailed assessment of mental status, cognitive function, gait and balance.	• Continue to consult with school and home teams. • Consider referral to a Specialty Concussion Clinic if symptoms are especially problematic or long. • It is best practice that a medical professional be involved in the management of each and every concussion, not just those covered by legislation.

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

» Don't be alarmed by symptoms – symptoms are the hallmark of concussion. The goal is to watch for a slow and steady improvement in symptoms over weeks. **It is typical for symptoms to be present for up to three to four weeks.** If symptoms persist at Week 4+, see SPECIAL CONSIDERATIONS.

» Once a concussion has been diagnosed:

Tom's Story

Tom, age 23, had several concussions from football and other sources in 2015 while a student in Covington KY. He experienced headaches, problems concentrating, sensitivity to light, irritability, anxiety, and depression. He received an inconsistent reception on his return to classroom ranging from those that expected nothing of him to those who expected him to perform as though the symptoms did not exist. The former inhibited learning and the latter caused anxiety and anger. His mother at first wasn't sure the symptoms were real and did not support him. Once they were documented medically, she became supportive. Early on he was told this was the new normal and these symptoms would be permanent. His desperation reached a breaking point in his junior year of high school when he attempted suicide. Tom finally got the help he needed. Tom was able to turn things around and became a recent graduate of The University of Louisville. He is now working in a pharmacy and positively contemplating his future.

STEP ONE: REMOVE student/athlete from all physical activities.
REDUCE school demands and home/social stimulation.

The biggest concern with concussions in children/teens is the risk of injuring the brain again before recovery. This is called "Second Impact Syndrome," and it is thought to occur when an already injured brain takes another hit resulting in possible massive swelling, brain damage and/or death[5]. The concussed brain is in a vulnerable state, and even a minor impact can result in a much more severe injury with risk of permanent brain damage, or rarely, even death. Therefore, once a concussion has been identified, it is critical to REMOVE a student/athlete from ALL physical activity, including PE classes, dance, active recess, recreational and club sports until medically cleared.

Secondly, **while the brain is still recovering,** all school demands and home/social stimulation should be reasonably REDUCED (not eliminated completely) and then slowly brought back up over 4 weeks. Reducing demands on the brain will promote REST and will help recovery.

FT	Family Team	REMOVE student/athlete from all physical activity immediately, including play at home (i.e. playground, bikes, skateboards), recreational, and/or club sports. REDUCE or limit home/social stimulation, including texting. Do not totally restrict electronics and social activities; make a reasonable home plan. Encourage REST for the first few days followed by a gradual re-introduction of cognitive, social and home activities.
ST/P	School Team Physical	REMOVE student/athlete from all physical activity immediately. Support REDUCTION of school demands and home/social stimulation. Provide encouragement to REST and take the needed time to heal.
ST/A	School Team Academic	REMOVE student/athlete from all physical activity at school, including PE, recess, dance class. REDUCE or limit school demands. Do not totally restrict academic expectations. (See ADJUST/ACCOMMODATE for Educators on pages 9-10). Encourage "brain REST" breaks at school.
MT	Medical Team	REMOVE student/athlete from all physical activity immediately. RULE-OUT more serious medical issues including severe traumatic brain injury. Consider risk factors – evaluate for concussion complications. Support REDUCTION of school demands and home/social stimulation. Encourage REST for the first few days followed by a gradual re-introduction of cognitive, social and home activities.

STEP TWO: EDUCATE all teams that symptoms tell the story of the recovery of the concussion.

After a concussion, the brain cells are temporarily inefficient. A helpful way for students, parents and teachers to think of a concussion is as an "energy crisis"; not as something scary like a bruise or a bleed. Here are two energy management scripts to use with your kids children/teens/students:

"When you have a concussion, you are like an iPhone 4, you are not an iPhone X. You are not broken, you are just not holding a charge long enough."

"When you have a concussion, you are like a car with a small gas tank. You can get out of the garage (go to school, socialize with friends) but you need to 'do, then fuel.' The symptoms function like an indicator light on the car's dashboard. When they 'flare', they are simply a signal of how well you have been managing your energy levels."

Symptoms become the barometer of the concussion. If symptoms may be present for up to 4 weeks (albeit hopefully decreasing daily/weekly), it is our duty to teach our children how to "pace their energy so they can control their symptoms" – that is the best way for them to stay engaged in school and life while holding symptoms at bay. Learning to manage symptoms is an active approach to rehabilitation! Doing cognitive and home activities in smaller amounts followed by eye/brain/water intake breaks (5 to 10 minutes)… "do, then fuel"… is how the school and home plan can be rehabilitative and not restrictive. It is unreasonable to ask a child/teen to never text or watch TV over 4 weeks. It is unreasonable to ask a teacher to never ask a student to read or look at a computer or complete some in-class schoolwork or homework over 4 weeks. If we want our children/teens/students to be engaged in their own recovery, we have to keep them reasonably engaged in their own lives – socially, academically and at home – while we are waiting for the concussion to heal.

PHYSICAL
How a Person Feels Physically

- Headache/Pressure
- Blurred vision
- Dizziness
- Poor balance
- Ringing in ears
- Seeing "stars"
- Vacant stare/Glassy eyed
- Nausea
- Vomiting
- Numbness/Tingling
- Sensitivity to light
- Sensitivity to noise
- Disorientation
- Neck Pain

COGNITIVE
How a Person Thinks

- Feel in a "fog"
- Feel "slowed down"
- Difficulty remembering
- Difficulty concentrating/easily distracted
- Slowed speech
- Easily confused

EMOTIONAL
How a Person Feels Emotionally

- Inappropriate emotions
- Personality change
- Nervousness/Anxiety
- Feeling more "emotional"
- Irritability
- Sadness
- Lack of motivation

SLEEP/ENERGY
How a Person Experiences Their Energy Level and/or Sleep Patterns

- Fatigue
- Excess sleep Trouble falling asleep
- Drowsiness
- Sleeping less than usual

Do not worry that your child has symptoms for 1 to 4 weeks; it is typical and natural to notice symptoms for 1 to 4 weeks. You just want to make sure you are seeing slow and steady resolution of symptoms every day. To monitor your child's progress with symptoms, chart symptoms periodically (see TIMEFRAME on page 5) and use the Symptom Checklist (see APPENDIX). In a small percentage of cases, symptoms from a concussion can last from weeks to months. (See SPECIAL CONSIDERATIONS on page 13.)

Medical Note from Bryce Meredith, DO, Family and Sports Medicine

Return to learn and return to play are equally important aspects in concussion rehabilitation and should occur in accordance. While prolonged rest was previously a mainstay of concussion treatment, prolonged cognitive and physical rest or "dark room therapy" are no longer recommended and can be detrimental. After a brief period of rest, non-contact physical activity should be initiated. Following this brief period of rest, student-athletes should then gradually and progressively increase physical activity, staying below cognitive and physical symptom-exacerbation thresholds (meaning symptoms should not worsen with physical or cognitive activity.) Newer evidence shows sub-symptom threshold exercise can be beneficial in concussion recovery; therefore, integrating the student-athlete back into both cognitive and physical activity with a controlled progression is not only beneficial, but a necessary step in the recovery process.

IMPORTANT

All symptoms of concussion are important; however, monitoring of physical symptoms, within the first 48 to 72 hours is critical! If physical symptoms worsen, especially headache, confusion, disorientation, vomiting, difficulty awakening, it may be a sign that a more serious medical condition is developing in the brain.

SEEK IMMEDIATE MEDICAL ATTENTION!

STEP THREE: ADJUST/ACCOMMODATE for PARENTS.

AFTER YOUR CHILD HAS RECEIVED THE DIAGNOSIS OF CONCUSSION by a healthcare professional, their symptoms will determine when they should return to school. As the parent, you will likely be the one to decide when your child goes back to school, because you are the one who sees your child every morning before school. Use the chart below to help decide when it is right to send your child back to school:

STAY HOME – EARLY SLEEP

If your child's symptoms are so severe that he/she cannot concentrate for even 10 minutes, he/she should be kept home on total bed rest – no texting, no driving, no reading, no video games, no homework, limited TV. It is unusual for this state to last beyond a few days. Consult a physician if this state lasts more than 2 days.

STAY HOME – LIGHT ACTIVITY

If your child's symptoms are improving but he/she can still only concentrate for up to 20 minutes, he/she should be kept home – but may not need total bed rest. Your child can start light mental activity (e.g. sitting up, watching TV, light reading), as long as symptoms do not worsen. If they do, cut back the activity and build in more REST.

TRANSITION BACK TO SCHOOL

When your child is beginning to tolerate 30 to 45 minutes of light mental activity, you can consider returning them to school. As they return to school:

- Parents should communicate with the school (school nurse, teacher, school mental health and/or counselor) when bringing the student into school for the first time after the concussion.
- Parents and the school should decide together the level of academic adjustment needed at school depending upon:

✔The severity of symptoms present
✔The type of symptoms present
✔The times of day when the student feels better or worse

- The child MUST sit out of physical activity – gym/PE classes, highly physically active classes (dance, weight training) and physically active recess until medically cleared.
- Consider removing child from band or music if symptoms are provoked by sound.

» GOING BACK TO SCHOOL

Concussions are injuries to the brain that have the potential to lead to long term adverse neurological and cognitive effects. They are like snowflakes in that no two that are alike. The impact they have is unique to that individual. Early recognition of the signs/symptoms of concussions with early treatment intervention has consistently resulted in faster and more complete recovery. That is why an individualized team approach to diagnosing and management of concussions is vital to successful recovery. Effective communication and collaboration with each member of the team (patients, parents, social support, teachers, coaches, and medical personnel) will maximize the potential for positive outcomes and limit long term problems concussions can produce.

Chad A. Walters, DO
Physical Medicine & Rehabilitation Specialist | Louisville

Medical Note

"Not all concussions are created equal. There's not a "one size fits all" kind of concussion. Students and athletes need to be treated on an individual basis and it's important for coaches, parents, and educators to understand that the recovery process is different for everyone. Return-to-learn is an area of concussion management that often goes overlooked. It is important for not only us, as physicians, but also parents, educators, athletic trainers, and coaches be mindful of the stresses that the classroom can have on concussed individuals. Returning to the classroom too early not only impacts academic performance, but also delays concussion recovery as well. Although their injuries may not be as obvious as a bruise on the leg or cut on the arm, they still definitely exist. It truly takes a team effort to have the best overall outcomes." Andrew Brown, DO, PGY-IV, Marshall Sports Medicine

STEP THREE: ADJUST/ ACCOMMODATE for EDUCATORS.

School Team Educators

Return to Learn (RTL)

RTL refers to a teacher's ability to help a student with a concussion learn to "pace" levels of energy in order to maximize learning while minimally contributing to symptom flare-ups. A RTL plan is most robust when teachers, especially general education teachers, are empowered to make educational decisions for their students hourly, daily and weekly, as they see fit. While medical input may be helpful in an RTL plan, teachers need not wait for medical input/"clearance"/approval to apply or remove academic adjustments, especially if medical input is not forthcoming, timely, available or relevant. RTL recommendations provided by healthcare providers are "suggestions," not mandates. Schools may accept or reject outside RTL suggestions based upon its educational soundness, feasibility and alignment with school policy/ protocol.

» Most Common "Thinking" Cognitive Problems Post-Concussion

And suggested adjustments/accommodations

Areas of concern	Suggested Accommodations for Return-to-Learn (RTL)
Fatigue, specifically Mental Fatigue	• Schedule "strategic" rest periods. Do not wait until the student's over-tiredness results in an emotional "meltdown." Proactively adjust the schedule to incorporate a 15-20 minute rest period 1X mid-morning and 1X mid-afternoon, as needed. • Allow for "PACING" – 5 to 10 minute eye/brain/water breaks in the classroom after periods of mental exertion. • Do not consider "quiet reading" as rest for all students. • Consider letting the student have sunglasses, headphones, preferential seating, quiet work space, passing in quiet halls, etc., as needed.
Difficulty concentrating	• REDUCE the cognitive load—it is a fact that smaller amounts of learning will take place during the recovery. • Since learning during recovery is compromised, the academic team must decide: What is the most important concept for the student to learn during this recovery? • Be careful not to tax the student cognitively by demanding that all learning continue at the rate prior to the concussion.
Slowed processing speed	• Provide extra time for tests and projects and/or shorten tasks. • Assess whether the student has large tests or projects due during the 4-week recovery period and remove or adjust due dates. • Provide a peer notetaker or copies of teacher's notes during recovery. • Grade work completed—do not penalize for work not done.
Difficulty with working memory	• Initially exempt the student from routine work/tests. • Since memory during recovery is limited, the academic team must decide: What are the most important concepts for the student to know? • Work toward comprehension of a smaller amount of material versus rote memorization.
Difficulty converting new learning into memory	• Allow student to "audit" the material during this time. • REMOVE "busy" work that is not essential for comprehension. Making the student accountable for all of the work missed during the recovery period (4 weeks) places undue cognitive and emotional strain on him/her and may hamper recovery. • Ease student back into full academic/cognitive load.
Emotional symptoms	• Be mindful of emotional symptoms throughout! Students are often scared, overloaded, frustrated, irritable, angry and depressed as a result of concussion. They respond well to support and reassurance that what they are feeling is often the typical course of recovery. • Watch for secondary symptoms of depression – usually from social isolation. Watch for secondary symptoms of anxiety – usually from concerns over make-up work or slipping grades. • New research informs us of the impact a concussion can have on emotional well-being. Supportive psychological support, education, cognitive-behavioral strategies and stress reduction are all suggested for psychological rehabilitation.

STEP THREE: ADJUST/ACCOMMODATE for EDUCATORS (continued)

Typically, students' symptoms only require 2 to 3 days of absence from school. If more than 3 days are missed, call a meeting with parents and seek a medical explanation.

New research shows that students who rested for 1 to 2 days followed by a gradual return to activities (school, socializing) had fewer reported symptoms then students who took 5 days of strict rest.[7]

More rest has not been proven to be the fastest, easiest way to recover from a concussion! A reasonable amount of rest, followed by a measured increase in home and school activities (activities that do not overly exacerbate symptoms) seems to be the formula for better concussion recovery.

PHYSICAL:

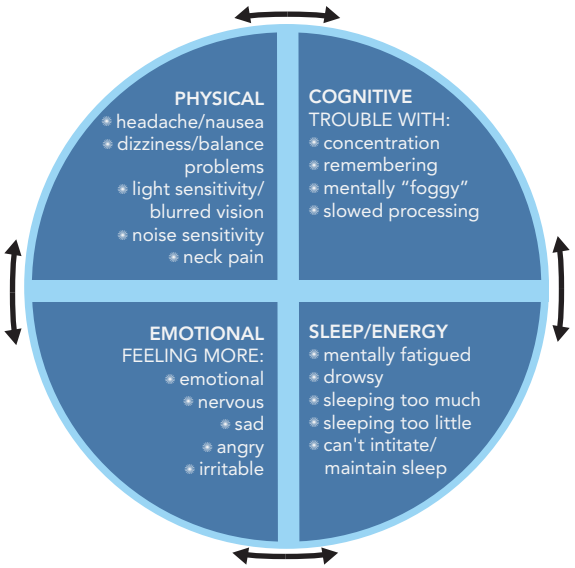
- "Strategic Rest"scheduled 15 to 20 minute breaks in clinic/quiet space (mid-morning; mid-afternoon, and/or as needed)
- Sunglasses (inside and outside)
- Quiet room/environment, quiet lunch, quiet recess
- More frequent breaks in classroom and/or in clinic
- Allow quiet passing in halls
- REMOVE from PE, physical recess, & dance classes without penalty
- Sit out of music, orchestra and computer classes if symptoms are provoked

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

Suggested Academic Adjustments



Read "Return to Learning: Going Back to School Following a Concussion" at nasponline.org/publications/cq/40/6/return-to-learning.aspx [8]

COGNITIVE:

- 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

SLEEP/ENERGY:

- Allow for "Pacing" – 5 to 10 minute eye/brain/water rest breaks in the classroom (i.e. eyes closed, head on desk) after periods of mental exertion
- Allow student to start school later in the day
- Allow student to leave school early
- Alternate "mental challenge" with "mental rest"

Message to Educators

An inefficiently fueled brain leads primarily to:

- mental fatigue
- slowed processing speed
- difficulty learning new material (aka problems with short-term memory)

How do you deal with mental fatigue in your classroom already (perhaps due to mono or family stress)? You might offer more rest breaks or some TLC.

How do you deal with a student's inability to get through in-class work due to slowed processing speed (perhaps due to ADHD)? If you teach math, you might assign every other problem. If you teach social studies, you might have the student listen with supplemental buddy notes.

What do you do if a student with seizures has been physically or cognitively unavailable to learn and now is scheduled to take a test? You might offer them the option of an oral presentation.

You see, the key to supporting a student with a concussion is **"differentiated instruction,"** a tool already within your repertoire! If you know how to help students with mental fatigue, slowed processing speed and short-term memory problems, you know how to support students with a concussion.

The best academic adjustment you can offer a student with a concussion is: REMOVAL of non-essential in-class work/homework and a REDUCTION of semi-essential in-class work/homework. Extension or postponement of work is less helpful to a student with a concussion unless it is used in combination with removal and reduction of in-class work/homework.

Adapted from GetSchooledOnConcussions.com [9]

» How do I get back to my sport?

A.K.A. How do I get "cleared" from this concussion?

While 70% of concussions will resolve in 4 weeks, a healthcare professional, whether in the Emergency Department or in a clinic, cannot predict the length of time or the course of recovery from a concussion. In fact, a healthcare professional should never tell a family that a concussion will resolve in X number of days, because every concussion is different and each recovery time period is unique. The best way to assess when a student/athlete is ready to start the step-wise process of "Returning-to-Sport" is to ask these questions:

» Is the student/athlete 100% symptom-free at home?

- ❍ Use the Symptom Checklist every few days. All symptoms should be at "0" on the checklist or at least back to the perceived "baseline" symptom level.
- ❍ Look at what the student/athlete is doing. At home he/she should be acting the same way as before the concussion, doing chores, interacting normally with friends and family.
- ❍ Symptoms should not return when the student/athlete is exposed to the loud, busy environment of home/social, mall or restaurants.

» Is the student 100% symptom-free at school?

- ❍ Your student/athlete should be handling school work at the same level as before the concussion.
- ❍ Use the Teacher Feedback Form (APPENDIX) to see what teachers are noticing.
- ❍ Watch your child/teen doing homework; he/she should be able to complete homework as efficiently as before the concussion.
- ❍ In-school test scores should be back to where they were pre-concussion.
- ❍ School workload should be back to where it was pre-concussion.
- ❍ Symptoms should not return when the student/athlete is exposed to the loud, busy environment of school.

» If the school or healthcare professional has used neurocognitive testing, are scores back to baseline or at least reflect normative average and/or baseline functioning?

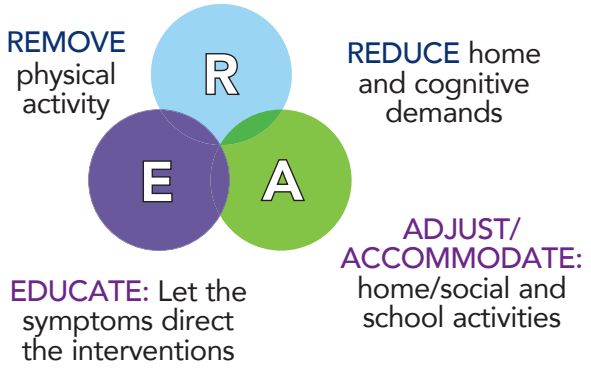
» If an athletic trainer (AT) or physical therapist (PT) is involved with the concussion, does the AT or PT feel that the student/athlete has reached his/her objective goals?

- ❍ Ask AT for feedback and/or serial administrations of the Symptom Checklist.

» Is the student off all medications used to treat the concussion?

- ❍ This includes over-the-counter medications such as ibuprofen, naproxen and acetaminophen, which may have been used to treat headache or pain.

If the answer to any of the questions is "NO," stay the course with management and continue to repeat:



… for however long it takes for the brain cells to heal!

The true test of recovery is to notice a steady decrease in symptoms while noticing a steady increase in the ability to handle more rigorous home social and school demands (Return to Activity).

PARENTS and TEACHERS try to add in more home/social and school activities and test out those brain cells!

Once the answers to the questions above are all "YES," turn the page to the PACE page to see what to do next!

STEP FOUR: PACE

FAMILY TEAM Is the student/athlete 100% back to pre-concussion functioning?

SCHOOL TEAM/ACADEMIC Is the student/athlete 100% back to pre-concussion academic functioning

WHEN ALL FOUR TEAMS AGREE

that the student/athlete is 100% recovered, the MEDICAL TEAM can then approve the starting of the Graduated RTS steps. The introduction of physical activity (in the steps outlined in order below) is the last test of the brain cells to make sure they are healed and that they do not "flare" symptoms. This is the final and formal step toward "clearance" and the safest way to guard against a more serious injury.

MEDICAL TEAM approves the start of RTS steps

SCHOOL TEAM/PHYSICAL Often the AT at the school takes the athlete through the RTS steps.

If there is no AT available, the MEDICAL TEAM should teach the FAMILY TEAM to administer and supervise the RTS steps.

Graduated Return-to-Sport (RTS) Strategy

Recommended by The 2016 Berlin Consensus Statement on Concussion in Sport[3]

Stage	Aim	Activity	Goal of each step
1	Symptom-limited activity	Daily activities that do not provoke symptoms	Gradual reintroduction of work/school activities
2	Light aerobic exercise	Walking or stationary cycling at slow to medium pace. No resistance training	Increase heart rate
3	Sport-specific exercise	Running or skating drills. No head impact activities	Add movement
4	Non-contact training drills	Harder training drills, e.g. passing drills. May start progressive resistance training	Exercise, coordination and increased thinking
5	Full contact practice	Following medical clearance, participate in normal training activities	Restore confidence and assess functional skills by coaching staff
6	Return to sport	Normal game play	

NOTE: An initial period of 24 – 48 hours of both relative physical rest and cognitive rest is recommended before beginning the RTS progression. There should be at least 24 hours (or longer) for each step of the progression. If any symptoms worsen during exercise, the athlete should go back to the previous step. Resistance training should be added only in the later stages (stage 3 or 4 at the earliest). If symptoms are persistent (e.g. more than 10 – 14 days in adults or more than 1 month in children), the athlete should be referred to a healthcare professional who is an expert in the management of concussion.

International Consensus Statements have outlined this as a safe practice for professional athletes when returning to an organized sport; these steps might ideally also be applied as best practice when returning any person with a concussion back to a recreational sport/activity.

Rehabilitation Note

The trajectory of recovery from concussion can be highly variable. In some instances, progression is relatively linear. For more complex concussions, an essential feature in assisting students towards maximizing their recovery is to factor in the importance of their pre-morbid predisposition. An understanding of an individual student's cognitive strengths and weaknesses, prevailing personality, and level of socialization can be critical elements. These factors play a vital role in conceptualizing their baseline and recognizing to what extent the student can reclaim that pre-injury status. Given their developmental stage, some students may lack awareness of these traits. Others may chart a different path forward, considering the "new normal" initiated by the impact of their concussion.[3] **Greg Perri, PSYD, MBA, Clinical Neuropsychologist, Southern Kentucky Rehabilitation Hospital**

PACE

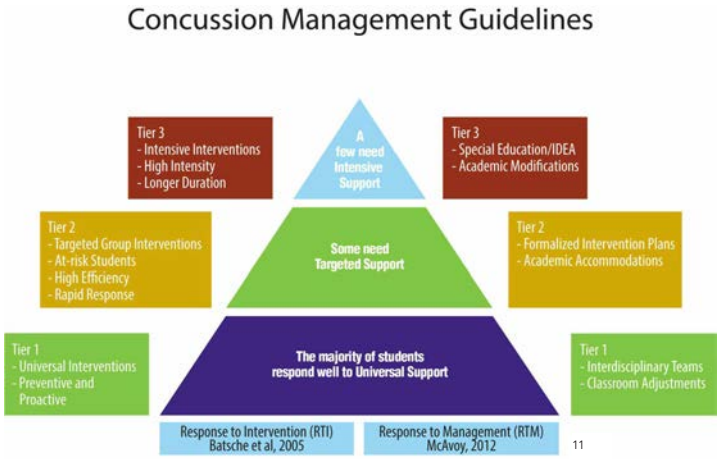
» Special Considerations

We now know, 70% of concussions will resolve within 4 weeks.

However, there remains the 30% of student/athletes who have on-going physical, cognitive, emotional or sleep/energy symptoms well beyond the 4 week mark. In those cases, the parent and medical professionals are advised to look to the school system for existing educational initiatives available to all students. A number of educational initiatives (Response to Intervention RTI; Multi-Tier System of Support MTSS) allow for ascending levels of supports for any student with a medical, psychological, behavioral or social condition impacting learning. Concussion, in theory, is a short-term, temporary condition that sometimes needs higher levels of educational support when it does not resolve in a timely fashion. Ascending levels of support suggest that good teaching and reasonable academic "adjustments" in the general education classroom are helpful to any and all students who struggle in an academic setting. Ascending levels of support are applicable to concussion. We have called this "Response to Management (RTM)."

With ascending levels of support, we maximize the student/athlete's recovery by focusing on good academic "adjustments" in the general education classroom.

A smaller percentage of students who struggle beyond the general education classroom may need a small amount of "targeted intervention" called academic "accommodation." Academic "accommodations" may be provided via a Health Plan, a Learning Plan, a 504 Plan.[10] It is still hoped that the accommodations for learning, behavior or concussions are temporary and amenable to intervention but may take months (instead of weeks) for progress to show. Lastly, in the rare event that a permanent "disability" is responsible for the educational struggle, the student may be assessed and staffed into special education services (IDEA) and provided an IEP (Individualized Education Program). This would constitute an extremely small number of students with a concussion. The interdisciplinary teams need to continue to work together with the student/athlete with protracted recovery. Parents and medical professionals need to seek medical explanation and treatment for slowed recovery; educators need to continue to provide the appropriate supports and the school physical team needs to continue to keep the student/athlete out of physical play.



Words Matter: Use these terms intentionally: Adjustments/ Accommodations/Modifications

DAYS TO WEEKS: **Academic Adjustments**
Informal, flexible day-to-day adjustments in the general education classroom for the first 3 to 4 weeks of a concussion. Can be lifted easily when no longer needed.

WEEKS TO MONTHS: **Academic Accommodations**
Slightly longer accommodations to the environment/ learning to account for a longer than 4+ week recovery. Helps with grading, helps justify school supports for a longer time.

MONTHS TO YEARS: **Academic Modifications**
Actual changes to the curriculum/placement/ instruction.

Medical Note

Each concussive injury is unique. Accordingly, subsequent treatment planning needs to respect said uniqueness. Pre-existing conditions vary per patient as well, and these make individually-catered treatment that much more important for an optimal outcome. A holistic communal approach to concussion care is ideal, and REAP provides the resources to connect the individuals who are assisting the patient's recovery journey. It is not enough to unilaterally gauge the patient's post-concussive symptoms. An interdisciplinary approach provides the optics necessary for the best evidence-based outcomes. REAP promotes such an approach. REAP may serve as an excellent resource for clinicians, patients, teachers, and family members to promote concussion awareness, and to connect the appropriate resources for an individually- catered treatment culture.

Dan Han, PsyD, CELM, FANA
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Professor of Neurology, Neurosurgery, and Physical Medicine & Rehabilitation
University of Kentucky College of Medicine

Resources

Cabinet for Health and Family Services, TBI Trust Fund	chfs.ky.gov	855-816-9577
Brain Injury Alliance of Kentucky	biak.us	502-493-0609
Brain Injury Alliance of Northern Kentucky	biank.org	859-379-8230
Kentucky Neuroscience Institute	ukhealthcare.uky.edu/kentucky-neuroscience-institute	859-257-1000
Owensboro Health Medical Group Family and Sports Medicine	owensborohealth.org	270-200-4510
Marshall Sports Medicine	marshallsportsmedicine.org	304-691-1880
K-Span	safekentucky.org	859-257-9484
Safe Kids Kentucky	www.safekids.org/coalition/safe-kids-kentucky	859-257-2292
St. Elizabeth Sport-Related Concussion Program	stelizabeth.com	859-655-7400
Frazier Rehabilitation Institute	uoflhealth.org	502-582-7400

Please Note:

This publication is not a substitute for seeking medical care.

REAP is available for customization in your state.

All questions or comments and requests for in-services/trainings can be directed to:

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  REAPconcussion.com
  Karen@GetSchooledOnConcussions.com

Special thanks to...

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Families of Contributors

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REFERENCES

1. Coronado VG, Haileyesus T, Cheng TA, et al. Trends in sports- and recreation-related traumatic brain injuries treated in US emergency departments: The National Electronic Injury Surveillance System-All Injury Program (NEISS-AIP) 2001-2012. *The Journal Of Head Trauma Rehabilitation.* 2015;30(3):185-197.
2. Zemek et al., Clinical Risk Score for Persistent Postconcussion Symptoms Among Children With Acute Concussion in the ED. *JAMA.* 2016;315(10):1014-1025. doi:10.1001/jama.2016.1203
3. McCrory P, Meeuwisse W, Dvorak J, et al. Consensus statement on concussion in sport—the 5th international conference on concussion in sport held in Berlin, October 2016. *Br J Sports Med* Published Online First: 6 March 2017. doi:10.1136/ bjsports-2017-097699
4. Leddy JJ, Sandhu H, Sodhi V, Baker JG, Willer B. Rehabilitation of Concussion and Post-concussion Syndrome. *Sports Health.* Mar 2012;4(2):147-154.
5. Cantu RC. Second impact syndrome. *Clin Sports Med.* 1998; 17:37-44.
6. Halstead ME, McAvoy K, Devore, CD et al. Clinical Report, Returning to Learning Following a Concussion, 2013, www.pediatrics.org/cgi/doi/10.1542/peds.2013-2867 doi:10.1542/peds.2013-2867
7. Thomas DG, Apps, JN, Hoffman RG et al., Benefits of Strict Rest After Acute Concussion: A Randomized Control Trial. *PEDIATRICS* Volume 135, number 2, February 2015
8. McAvoy K., 2012, Return to Learning: Going Back to School Following a Concussion. nasponline.org/publications/cq/40/6/return-to-learning.aspx
9. Get Schooled On Concussions website: www.GetSchooledOnConcussions.com
10. Wrightslaw, Section 504 and IDEA: Basic Similarities and Differences, Rosenfeld, SJ. www.wrightslaw.com/advoc/articles/504_IDEA_Rosenfeld.html.
11. McAvoy K., 2011, Providing a Continuum of Care for Concussion using Existing Educational Frameworks. *NABIS Brain Injury Professional.* Volume 9 Issue 1.
12. Giza CC, Kutcher JS, Ashwal S et al. 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. Neurology. 2103 Jun11:80(24):2250-7.

REAP thanks:

The REAP Third Edition Advisory Team: Geoff Lauer, MA, Kristin Lundgren, ATC, Danny Mistry, MD, ATC and Danny G. Thomas MD, MPH

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- Ciera Lund and the Lund family

The 2013 Colorado version of the REAP publication is available in Spanish upon request.

» Symptom Checklist

Name: _____ Assessment Date: _____

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

Pathways of Concern	Symptoms	Severity Rating						
			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
C	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
N	I have neck pain	0	1	2	3	4	5	6
S/E	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
Cog	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

Regular symptom progress monitoring is recommended as best practice.

» Teacher Feedback Form

Date _____

Student's Name _____

Date of Concussion_____

Student: you have been diagnosed with a concussion. It is your responsibility to gather data from your teachers before you return to the doctor for a follow-up visit. A day or two before your next appointment, go around to all of your teachers (especially the CORE classes) and ask them to fill in the boxes below based upon how you are currently functioning in their class(es).

Teachers: Thank you for your help with this student. Your feedback is very valuable. We do not want to release this student back to physical activity if you are still seeing physical, cognitive, and emotional or sleep/energy symptoms in your classroom(s). If you have any concerns, please state them below.

1. Your name 2. Class taught	Is the student still receiving any academic adjustments in your class? If so, what?	Have you noticed, or has the student reported, any concussion symptoms lately? (e.g. complaints of headaches,dizziness, difficulty concentrating or remembering, more irritable, fatigued than usual etc.?) If yes, please explain.	Do you believe this student is performing at his/her pre-concussion learning level?
			❑ Yes ❑ No Date: Signature:
			❑ Yes ❑ No Date: Signature:
			❑ Yes ❑ No Date: Signature:
			❑ Yes ❑ No Date: Signature:

Regular academic progress monitoring is recommended as best practice.

Kentucky Statute KRS 160.445

Sports safety course required for high school athletics coaches -- Training and education on symptoms, treatment, and risks of concussion -- Venue-specific emergency action plans.

(1)(a) The Kentucky Board of Education or organization or agency designated by the board to manage interscholastic athletics shall require each interscholastic coach to complete a sports safety course consisting of training on how to prevent common injuries. The content of the course shall include but not be limited to emergency planning, heat and cold illnesses, emergency recognition, head injuries including concussions, neck injuries, facial injuries, and principles of first aid. The course shall also be focused on safety education and shall not include coaching principles.

(b) The state board or its agency shall:

1. Establish a minimum timeline for a coach to complete the course;
2. Approve providers of a sports safety course;
3. Be responsible for ensuring that an approved course is taught by qualified professionals who shall either be athletic trainers, registered nurses, physicians, or physician's assistants licensed to practice in Kentucky; and 4. Establish the minimum qualifying score for successful course completion.

(c) A course shall be reviewed for updates at least once every thirty (30) months and revised if needed.

(d) A course shall be able to be completed through hands-on or online teaching methods in ten (10) clock hours or less.

(e) 1. A course shall include an end-of-course examination with a minimum qualifying score for successful course completion established by the board or its agency.

2. All coaches shall be required to take the end-of-course examination and shall obtain at least the minimum qualifying score.

(f) Beginning with the 2009-2010 school year, and each year thereafter, at least one (1) person who has completed the course shall be at every interscholastic athletic practice and competition.

(2)(a) Beginning with the 2012-2013 school year, and each year thereafter, the state board or its agency shall require each interscholastic coach to complete training on how to recognize the symptoms of a concussion and how to seek proper medical treatment for a person suspected of having a concussion. The training shall be approved by the state board or its agency and may be included in the sports safety course required under subsection (1) (a) of this section.

(b) The board or its agency shall develop guidelines and other pertinent information or adopt materials produced by other agencies to inform and educate student athletes and their parents or legal guardians of the nature and risk of concussion and head injury, including the continuance of play after concussion or head injury. Any required physical examination and parental authorization shall include acknowledgement of the education information required under this paragraph.

(c) Upon request, the board or its agency shall make available to the public any training materials developed by the board or agency used to satisfy the requirements of paragraph (a) of this subsection. The board or its agency shall not be held liable for the use of any training materials so disseminated.

(3)(a) A student athlete suspected by an interscholastic coach, school athletic personnel, or contest official of sustaining a concussion during an athletic practice or competition shall be removed from play at that time and shall not return to play prior to the ending of the practice or competition until the athlete is evaluated to determine if a concussion has occurred. The evaluation shall be completed by a physician or a licensed health care provider whose scope of practice and training includes the evaluation and management of concussions and other brain injuries. A student athlete shall not return to play on the date of a suspected concussion absent the required evaluation.

(b) 1. Upon completion of the required evaluation, a coach:

a. May return a student athlete to play if the physician or licensed health care provider determines that no concussion has occurred; or

b. Shall not return a student athlete to play if the physician or licensed health care provider determines that a concussion has occurred.

2. If no physician or licensed health care provider described in paragraph (a) of this subsection is present at the practice or competition to perform the required evaluation, a coach shall not return a student athlete to play who is suspected of sustaining a concussion. The student athlete shall not be allowed to participate in any subsequent practice or athletic competition unless written clearance from a physician is provided.

(c) A student athlete deemed to be concussed shall not return to participate in any athletic practice or competition occurring on the day of the injury. The injured student athlete shall not be allowed to participate in any subsequent practice or athletic competition unless written clearance from a physician is provided.

(4)(a) The state board or its agency shall adopt rules governing interscholastic athletics conducted by local boards of education to require each school that participates in interscholastic athletics to develop a venue-specific emergency action plan to deal with serious injuries and acute medical conditions in which the condition of the patient may deteriorate rapidly. The plan shall:

1. Include a delineation of role, methods of communication, available emergency equipment, and access to and plan for emergency transport; and

2. Be in writing, reviewed by the principal of the school, distributed to all appropriate personnel, posted conspicuously at all venues, and reviewed and rehearsed annually by all licensed athletic trainers, first responders, coaches, school nurses, athletic directors, and volunteers for interscholastic athletics.

(b) Each school shall submit annual written verification of the existence of a venue-specific emergency action plan to the state board or its agency.

(5) Each school shall maintain complete and accurate records of its compliance with this section and shall make the records available for review by the state board or its agency upon request.

Effective: June 29, 2017 History: Amended 2017 Ky. Acts ch. 160, sec. 1, effective June 29, 2017. -- Amended 2013 Ky. Acts ch. 30, sec. 8, effective June 25, 2013. -- Amended 2012 Ky. Acts ch. 72, sec. 1, effective April 11, 2012. -- Created 2009 Ky. Acts ch. 90, sec. 2, effective March 24, 2009.

SPORTS MEDICINE POLICY
PROTOCOL RELATED TO CONCUSSIONS AND CONCUSSED STUDENT-ATHLETES FOR ALL INTERSCHOLASTIC ATHLETICS IN THE COMMONWEALTH OF KENTUCKY

(Released: June, 2010, Commissioner Julian Tackett, Updated per General Assembly Action, April, 2012)

Sec. 1) INTRODUCTION

a) In various sports playing rule codes, the National Federation of High Schools (NFHS) has implemented standard language dealing with concussions in student-athletes. The basic rule in all sports (which may be worded slightly differently in each rule book due to the nature of breaks in time intervals at contests in different sports) states:

(1) Any athlete who exhibits signs, symptoms, or behaviors consistent with a concussion (such as loss of consciousness, headache, dizziness, confusion, or balance problems) shall be immediately removed from the contest and shall not return to play until cleared by an appropriate health-care professional. (Please see NFHS Suggested Guidelines for Management of Concussion in the Appendix in the back of each NFHS Rules Book).

(2) The NFHS also has recommended concussion guidelines through its Sports Medicine Advisory Committee (SMAC). These recommendations include:

a. No student-athlete should return to play (RTP) or practice on the same day of a concussion.

b. Any student-athlete suspected of having a concussion should be evaluated by an appropriate health-care professional that day.

c. Any student-athlete with a concussion should be medically cleared by an appropriate health-care professional prior to resuming participation in any practice or competition.

d. After medical clearance, return to play should follow a step-wise protocol with provisions for delayed return to play based upon the return of any signs or symptoms.

(3) To implement these rules, and based on KRS 160.445 and 156.070(2) as amended by the Kentucky General Assembly in 2012, the KHSAA has defined this policy and parameters to guide all interscholastic school athletic representatives and all KHSAA licensed sports officials. References to signs and symptoms of concussion are detailed by the NFHS through its SMAC upon consultation with the Centers for Disease Control and Prevention (CDC).

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Katrina's Story

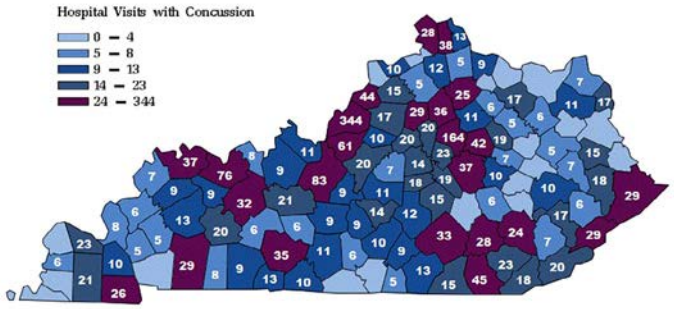
Katrina had been playing soccer from the age of 5 through college. During her career Katrina suffered 28 documented concussions with many of those occurring during middle school. Katrina states that she believes that there were many more that were hidden from coaches and family because of her desire to stay on the field and play through the discomfort not letting her teammates down.

Katrina's symptoms included trouble focusing, headaches that led to migraines, balance issues and symptoms of attention deficit disorder. At this time in her middle school career there was no assistance available to Katrina in school to help her with her day-to-day learning. Katrina wishes that there would have been something in place to help her understand what was happening and to help her navigate school. Katrina says that help with keeping up with notes and more time taking test would have been very helpful.

Ultimately Katrina was awarded a scholarship to continue her career. It was during this time Katrina was disqualified from college athletics because of her numerous concussions. Katrina continues to suffer with symptoms including headaches and trouble sitting still and sees her Neurologist yearly.

Katrina wishes that she had spoken up and realized that she wasn't going to disappoint anyone.

Kentucky Concussion Cases in School Age Children (6-18) by County



Data Source: 2021 Provisional Kentucky Inpatient and Outpatient Claims files, excludes other medical care and no medical care. Kentucky TBI Surveillance Project, Kentucky Injury Prevention and Research Center, University of Kentucky

For more information on
Kentucky REAP Program contact:

TBI Trust Fund of Kentucky
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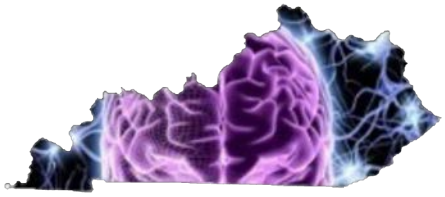
1-855-816-9577



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ACL
Administration for Community Living

NASHIA
National Association of State Head Injury Administrators