

STUDENT-ATHLETE CONCUSSION DURING EXTRACURRICULAR ACTIVITIES

Most athletes who experience a concussion can recover completely as long as they do not return to play prematurely. The effects of repeated concussions can be cumulative, and after a concussion, there is a period in which the brain is particularly vulnerable to further injury. If an athlete sustains a second concussion during this period, the risk of complications and/or permanent brain injury increases significantly. The consequences of a seemingly mild second concussion can be very severe, and even result in death (i.e., Second Impact Syndrome). In an effort to ensure the proper diagnosis and care for concussions among student-athletes, Charlottesville City Schools (CCS) has developed the following comprehensive regulations and procedures.

Definitions

Concussion –a brain injury that is characterized by an onset of impairment of cognitive and/or physical functioning, and is caused by direct or indirect traumatic forces to the head. This brain injury is related to metabolic dysfunction, rather than structural injury, and is typically associated with normal neuroimaging findings (i.e., CT scan, MRI). A concussion can occur with or without a loss of consciousness, and proper management is essential to the immediate safety and long-term future of the injured individual.

Second Impact Syndrome – Is a condition in which a second concussion occurs before a first concussion has properly healed, causing rapid and severe brain swelling and often catastrophic results. Second impact syndrome can result from even a very mild concussion that occurs days or weeks after the initial concussion. This injury is seen more often in adolescent athletes perhaps due to lack of reporting the initial injury, but also perhaps due to neurodevelopmental vulnerability.

Appropriate Licensed Health Care Provider – Is a physician, physician assistant, osteopath, or certified athletic trainer licensed by the Virginia Board of Medicine; a neuropsychologist licensed by the Board of Psychology; or a nurse practitioner licensed by the Virginia State Board of Nursing.

Education

There is no such thing as just “got your bell rung”; any brain trauma is a serious injury. Concussions are difficult to see with the untrained eye. Therefore it is necessary that coaches, parents, teachers, student-athletes, school medical personnel and administrators are educated about the injury and become familiar with the common signs and symptoms associated with a concussion.

1. Coaches and School Medical Personnel

All coaches and school medical staff will be required to complete the online training for concussions through the National Federation of High Schools.

This training will be done on an annual basis with the coaches completing it within the first week of practice for their respective sport and medical personnel completing it within the first month of each academic school year.

Information including signs and symptoms associated with concussions, effects of a concussion on the student-athlete, CCS concussion management protocol and return to activity guidelines will be included in the coaches' athletic handbook.

2. Administrators and Faculty

All administrators and faculty will receive annually, information including signs and symptoms associated with concussions, effects of a concussion on the student-athlete, cognitive (Appendix IV) and athletic performance, and CCS concussion management protocol.

This information will be included in the faculty handbook.

3. Parent/Guardian and Student-Athlete

In order to participate in any athletic activity, the student-athlete and their parent/guardian must attend the first parent meeting of the season and view an informational video about concussions.

During this same meeting each parent/guardian will receive written information including signs and symptoms associated with concussions, effects of a concussion on the student-athlete, outline of CCS concussion management protocol and return to play guidelines (See Appendix I).

The parent/guardian will acknowledge receipt, review and understanding of this information with a signature that should be returned to the athletic trainer (AT) or AD prior to participation.

Each student-athlete will receive the same information in his/her athletic handbook.

During the parent meeting the student-athlete and parent/guardian will also have the opportunity to hear a healthcare provider with expertise in concussion management speak about the risk involved with concussion.

Computerized Neurocognitive Exam

It has been known for some time that the neurocognitive effects of a concussion last much longer than the subjectively reported symptoms. Computerized neurocognitive tests allows a more accurate determination of how the brain is healing than relying solely on reported symptoms. This testing is typically administered when the athlete reports being symptom free after a suspected concussion to assess for lingering, and/or subtle cognitive deficits, although it may be given prior to that time to track recovery.

1. Initial baseline testing will involve all athletes in the contact and collision sports listed below.
2. After the first year of testing is complete subsequent years will test only 9th grade athletes and 11th grade athletes, as well as any athlete that has not obtained an initial baseline.
3. In the pre-season, the student-athlete will take a 25-minute baseline neurocognitive test on an internet-connected computer. The test measures reaction time, memory, and other neurocognitive functions.
4. If the student-athlete sustains a concussion or suspected concussion at a later date, the student-athlete takes a post-trauma test, and the results of that test are statistically compared with the athlete's own baseline.
5. Results of the comparison are immediately available with details regarding the trauma, and evidence of lingering neurologic and neurocognitive symptoms of a concussion. Follow-up tests and reports are available to monitor resolution of neurocognitive and other post-concussive symptoms.

Football	Volleyball	Field Hockey
Cheerleading	Basketball	Wrestling
Diving	Lacrosse	Soccer
Softball	Baseball	

Management of a Concussion

Each person reacts differently to a brain injury, therefore each student-athlete and each concussion should be treated with individual care. The following situations indicate a medical emergency and require activation of the Emergency Medical System:

- Any athlete who has symptoms of a concussion, and who is not stable (condition is worsening)
- Any athlete who exhibits any of the following signs or symptoms:
 - Deterioration of neurological function
 - Decreasing level of consciousness
 - Decrease or irregularity in respirations
 - Unequal, dilated, or unreactive pupils
 - Cranial nerve deficits, such as dilated or unequal pupils, loss of consciousness, vomiting, slurred speech or any seizure activity
 - Any signs or symptoms of a spine injury, skull fracture, or bleeding of the brain
 - Deterioration of mental status; lethargy, difficulty staying awake, confusion or agitation
 - Any seizure activity

If, in the opinion of the AT, a student-athlete has a concussion but does not present with the above signs or symptoms, it is required that the parent/guardian obtain a second opinion from another authorized health care provider with some specialty in concussion diagnosis and treatment at their earliest convenience.

The student-athlete's own health care provider is appropriate if he/she can certify to be aware of the current medical guidance on concussion evaluation and management.

In the event that the student-athlete is seen by a health care provider that does not have specialty training in concussion management and/or the AT is not satisfied with the guidelines provided, it may be required that the student-athlete obtain a third opinion from a health care provider with specialty training in concussion diagnosis and management (i.e. neurologist or neuropsychologist).

Guideline for coaches and/or other related school personnel

If the AT is not available, the coach is responsible for recognizing and providing appropriate care for a suspected concussion.

Any student-athlete suspected of sustaining a concussion while under the supervision of a CCS coach should be removed from activity and shall not return to play that day nor until,

- (i) evaluated by an appropriate licensed health care provider as determined by the CCS concussion management team and
- (ii) written clearance has been received from such licensed health care provider.

Appropriate guidelines for referral should be followed (see Management of a Concussion).

If the athlete requires immediate referral, EMS should be activated, parent/guardian should be contacted, and the designated coach should accompany the athlete to the hospital.

If immediate referral is not suggested the coach is responsible for notifying the parent/guardian of the injury, providing at home care instructions.

The parent/guardian should provide transportation home, either themselves or another responsible adult.

Athletes with a suspected concussion should not be allowed to drive themselves home.

If the parent/guardian can not be reached, the coach should insure that the athlete will be in the care of a responsible adult, who is capable of monitoring the athlete and understanding home instructions. Efforts to reach the parent/guardian should continue.

If the injury occurs at an away event, the coach is encouraged to seek the assistance of the host AT.

In the absence of an AT the coach will have access to the Pocket Sport Concussion Assessment Tool (SCAT) II (see Appendix III) for sideline evaluation of a suspected concussion. The coach should notify and report all signs and symptoms of the injury, as well as all knowledge of the mechanism of injury to the CCS AT.

Guidelines for the AT

The AT should assess the injury and follow appropriate guidelines for referral.

If no immediate referral is indicated the AT should perform serial assessments using the SCAT II (see Appendix III).

The AT will notify the student-athlete's parent/guardian and provide at home care instructions.

The parent/guardian should provide transportation home, either themselves or another responsible adult.

Athletes with a suspected concussion should not be allowed to drive themselves home.

If the parent/guardian can not be reached, the AT should insure that the athlete will be in the care of a responsible adult, who is capable of monitoring the athlete and understanding home instructions.

Efforts to reach the parent/guardian should continue.

The AT should notify the appropriate coach and/or other appropriate school personnel, including but not limited to the school nurse, and the student-athlete's teachers, of the suspected concussion.

Appropriate documentation regarding assessment, management and progression of the injury will be maintained by the AT.

Upon receipt of appropriate written medical release the AT will determine when the student-athlete may return to full physical activity based on successful completion of the step-wise progression back to participation program (see Return to Play).

Guidelines for the School Nurse

In the event that an athlete presents to the nurse with signs and/or symptoms of a concussion, the nurse should assess the injury to determine if a medical emergency exists as described above in “Management of a Concussion.” If an emergency referral is necessary, the nurse should follow the appropriate guidelines for off-campus referrals. If no immediate referral is indicated, the school nurse should care for the current symptoms.

If no immediate off-campus referral is indicated, the school nurse should contact the AT and release the student-athlete to his/her care.

Transfer of care will be documented by a release of care form signed by both the school nurse and the AT. A photocopy of this document will be considered valid.

In the event the AT is not on-campus or is unable to be reached, the school nurse should care for the student-athlete as appropriate, including but not limited to contacting the student-athlete’s parent/guardian and ensuring the release to a responsible adult if necessary.

At home care instructions should be given to the parent/guardian or other designated adult responsible for the care of the student-athlete.

Return to Play

A signed Against medical Advice form will not be accepted to allow an athlete with signs or symptoms of a concussion to return to play before the following protocol is achieved.

Following a suspected concussion, the student-athlete will follow the stepwise progression back to participation listed below.

Progression to the next stage should begin with successful completion of the previous stage.

Each stage should take 24 hours to complete.

If a new stage provokes symptoms, the student-athlete should return to the previous stage for at least 24 hours.

Athletes must be off any medications that are specifically being used to treat acute symptoms to be considered symptom free.

At minimum the student athlete will not return to full participation for 7 days.

1. No activity. Complete physical rest until asymptomatic.

2. Low levels of physical exertion as tolerated (symptoms do not get worse or return during or after activity). This can include walking, light jogging, or light stationary bike.
3. Moderate levels of physical exertion as tolerated. This involves increasing the intensity of aforementioned aerobic activities.
4. Noncontact sport specific drills including full-court drills in basketball, or passing drills in football. May also begin progressive weight training.
5. Full contact practice.
6. Normal game play.

Return to Academics

The need for student-athletes with a suspected concussion to have physical rest has been well known for years. However, in the past several years it has become more evident that cognitive rest is also important. Just as physical exertion can exacerbate and prolong symptoms of a concussion, cognitive exercise can have the same effect.

Following a concussion, student-athletes may have difficulty in school, which could last from days to months.

If the AT suspects that an athlete has sustained a concussion, the athlete will be allowed excused absences for the next three school days without written notification from an off-campus healthcare provider.

The AT will notify teachers of all known concussions that affect a student-athlete in their class. With this notification it is expected that the teachers will provide appropriate accommodations for the student-athlete according to Appendix IV.

Because concussion symptoms usually worsen with the increased cognitive strain of school, returning to school is not recommended until the symptoms are mild or absent at rest.

Return to school should be done as a progression of gradually increasing periods of time. When necessary, accommodations should be made to assist the student athlete in completing homework, test, and/or projects (see Appendix IV).

The student-athlete may require rest periods if symptoms become worse throughout the day.

Avoidance of areas or times of extreme noise or overstimulation should be encouraged, including noisy hallways or cafeterias as well as group socializing.

Because the concussed individual appears normal, it is important that all school faculty understand the effects of a concussion as well as the management concerns. Typically

teachers are the first to notice behavioral changes, therefore are a vital part of the progression back to normal daily activity (see Appendix IV).

If any of the indications are evident, the teacher should notify the AT and/or school nurse and the student-athlete's parent/guardian. Information on concussions will be distributed to all faculty members each academic year.

Attachments: Appendix I – Concussion Information for Parent/Guardian
Appendix II – Home Care Instruction for Concussion
Appendix III – Sport Concussion Assessment Tool 2
Appendix IV – Academic Accommodations and Classroom Behavioral Changes
Appendix V – Concussion Information for the Student-Athlete

Resources

<http://www.nata.org/statements/position/concussion.pdf>
http://www.cdc.gov/concussion/headsup/high_school.html
Video: Outside The Lines on ESPN <http://espn.go.com/video/clip?id=3094263>
<http://www.sportconcussions.com/html/Zurich%20Statement.pdf>
<http://www.sportsmedicineconcepts.com/index.asp>
<https://www.csms.org/upload/files/sportsmed/smsprg2008.pdf>
http://www.atSNJ.org/documents/pdf/2010_concussion_in_the_adolescent_athlete.pdf
A Parent's Guide to Concussion in Sports, <http://www.nfhs.org/>
<http://www.headminder.com/site/cr/home.html>
http://bjsm.bmj.com/content/43/Suppl_1/i76.full

Issued: August 5, 2011
Revised: January 9, 2013

Legal Reference: Code of Virginia, 1950, as amended Section 22.1-271.5

Charlottesville City Schools
Concussion Information for Parent/Guardian

What is a Concussion?

A concussion is a brain injury. A concussion can be caused by a blow to the head or body, which causes the brain to move rapidly inside the skull. Concussions affect the metabolic processes of the brain. This means that the chemicals are not reacting with each other the way they should. All concussions are a serious medical concern, even “getting your bell rung.” MRI’s and CT’s are good for ruling out more time sensitive injuries such as bleeding in/around the brain or a skull fracture, however they do not diagnose a concussion. Signs and symptoms of a concussion can show immediately or may not show up for days or weeks later. If an athlete reports any symptoms of a concussion or you recognize any signs, seek medical attention as soon as possible.

Observed Signs

- Appears dazed or confused
- Does not understand simple instructions
- Does not have short term recall
- Appears clumsy or disoriented
- Appears irritable or fatigued
- Slow to answer questions
- Appears more emotional
- Vomiting
- Does not recall events before or after injury
- Has balance problems

Reported Symptoms

- Headache or feeling of pressure
- Vision problem
- Nauseous
- Feeling dizzy or in a fog
- Complains of light or noise sensitivity
- Complains of ringing in the ears
- Complains of problems concentrating
- Complains of problems remembering

Parent/Guardian’s Role

It is important to learn the signs and symptoms because you may be the first to notice changes in your son/daughter. You should also encourage your child to learn the common signs and symptoms and explain the importance of reporting any possible concussion to their Certified Athletic Trainer (AT) or coach. If you suspect your child has a concussion, you should notify the AT and inform them of your concerns. If your child has a worsening headache, dilated or unequal pupils, loss of consciousness, vomiting, slurred speech or any seizure activity you should seek emergency medical care. To help lessen the symptoms and shorten recovery time you should limit your child’s exposure to loud noises, bright lights, computers, video games, televisions and phones.

Return to School and Normal Daily Activity

Rest is the key to proper healing following a concussion. Decreasing the stress on the brain early after a concussion may lessen symptoms and shorten recovery time. Most student-athlete’s will have difficulty with concentration, memory, and processing, which all negatively affect their school performance. A decline in performance may cause even greater mental strain on the student-athlete. This increased strain

- See back side -

can cause symptoms to worsen and negatively affect healing of the brain. Return to school should be done as a progression of gradually increasing periods of time. Avoidance of areas or times of extreme noise or overstimulation should be encouraged, including noisy hallways or cafeterias as well as group socializing.

Return to Play

If your child has been removed from activity due to a suspected concussion he/she must have a written medical release from his/her licensed health care provider. The written medical release shall certify that the provider is aware of the current medical guidance on concussion evaluation and management. Upon obtaining written medical release from the student-athlete's licensed health care provider the student-athlete must then be monitored by the AT to ensure that the student-athlete no longer exhibits signs, symptoms or behaviors consistent with a concussion at rest or with exertion. Once the student-athlete no longer exhibits any signs or symptoms consistent with a concussion the student-athlete must successfully complete a progressive return to sports participation program with the supervision of the AT. Each stage of the return to sports participation program should take 24 hours to complete. At minimum the student-athlete will not return to full participation for 7 days.

Concussions can be a life threatening injury and should be treated with care. Some signs and symptoms will resolve immediately, others will linger for days or weeks. It is important that the athlete does not return to activity before he/she is completely healed from the concussion. If an athlete obtains a second blow to the head before he/she is healed from the initial brain injury then the possibility of long term effects is greater and there is a chance of incurring Second Impact Syndrome (SIS). SIS occurs when the athlete sustains a second concussion before the initial injury has healed. This causes rapid brain swelling, long term effects on brain function and can be fatal.

Short Term Effects After an athlete sustains one concussion, they are more likely to sustain a second one, compared to others that have not been concussed. Repeat concussions, even when mild, can increase the risk of post-concussive symptoms, such as headaches, memory loss, difficulty concentrating, behavior or personality changes, extreme fatigue etc. These symptoms may last only a short time or could remain a problem to the student-athlete for months or longer.

Long Term Effects

Very little is known about the long term effects of concussion however more research is focusing on this area in the past several years. Some studies of NFL football players link a history of concussions to degeneration of brain cells, dementia and/or Alzheimer's, as well as depression. Effects of sports concussion in early adulthood have been shown to persist beyond 30 years and can cause cognitive and motor function alteration.

Websites of Interest

http://www.cdc.gov/concussion/headsup/high_school.html

Video: Outside The Lines on ESPN <http://espn.go.com/video/clip?id=3094263>

Video: Brandon's Story http://www.cdc.gov/TraumaticBrainInjury/CTK_Video_WM_BB.html

A Parent's Guide to Concussion in Sports, <http://www.nfhs.org/>

Please cut along this line and return bottom portion to your child's coach.

I, _____ parent/guardian of, _____
have received, reviewed and understand the information on concussions. I agree to work in coordination with the coaches, teachers, certified athletic trainer and administrators of Charlottesville City Schools in order to provide a safe environment for my child as well as all athletes at the school.

Signature of Parent/Guardian

Date

Printed Name of Parent/Guardian

Printed Name of Student-Athlete

**Charlottesville City Schools
Home Care Instructions for Concussion**

Athlete _____ Date of injury _____ Sport _____

Phone _____ Parent/guardian name _____

Your son/daughter has sustained a head injury while participating in _____. In some instances, the signs of a concussion do not become obvious until several hours or even days after the injury. Please be especially observant for the following signs and symptoms. The best guideline is to note symptoms that worsen, and behaviors that seem to represent a change in your son/daughter.

1. Headache (especially one that increases in intensity*)
2. Difference in pupil size from right to left eye, dilated pupils*
3. Noticeable changes in the level of consciousness*
4. Decreased or irregular pulse OR respiration*
5. Mental confusion/behavior changes
6. Nausea and vomiting*
7. Dizziness
8. Memory loss
9. Ringing in the ears
10. Changes in gait or balance
11. Blurry or double vision*
12. Slurred speech*
13. Seizure activity*

*** Seek medical attention at the nearest emergency department.**

Please follow follow the instructions outlined below for at home care.

It is OK for your child to:

- Use ice pack on head & neck
as needed for comfort
- Eat a light diet
- Go to sleep
- Rest

Your child should not:

- Check eyes with a flashlight
- Wake up every hour
- Test reflexes
- Stay in bed

Do NOT:

- Drink alcohol
- Drive if symptomatic
- Exercise or lift weights
- Take ibuprofen, aspirin, naproxen or, other non-steroidal anti-inflammatory medications

Even if there is no emergent concerns you son/daughter is required to obtain a written medical release prior to returning to physical activity. Please refer to the return to play section of the concussion information you received at the beginning of the season or speak with your athletic trainer for more information.

**Please remind your child to check in with the Athletic Trainer prior practice/event, on the first day he or she returns to school. Your Athletic Trainer: Joella Matheny
Cell: 434-996-3403
Email: joella.matheny@charlottesvilleschools.org**

Recommendations provided to: _____ Phone #: _____

Recommendations provided by: _____ Phone #: _____

Date: _____ Time: _____

**Charlottesville City Schools
Pocket SCAT II**

Concussion should be suspected in the presence of **anyone or more** of the following: symptoms (such as headache), or physical signs (such as unsteadiness), or impaired brain function (e.g. confusion) or abnormal behavior.

1. Symptoms

Presence of any of the following signs & symptoms may suggest a concussion.

Loss of consciousness	Seizure or convulsion
Amnesia	Headache
“Pressure in head”	Neck Pain
Nausea or vomiting	Dizziness
Blurred vision	Balance problems
Sensitivity to light	Sensitivity to noise
Feeling slowed down	Feeling like “in a fog”
“Don’t feel right”	Difficulty concentrating
Difficulty remembering	Fatigue or low energy
Confusion	Drowsiness
More emotional	Irritability
Sadness	Nervous or anxious

2. Memory function

Failure to answer all questions correctly may suggest a concussion.

“At what venue are we at today?”

“Which half is it now?”

“Who scored last in this game?”

“What team did you play last week / game?”

“Did your team win the last game?”

3. Balance testing

Instructions for tandem stance

*“Now stand heel-to-toe with your **non-dominant** foot in back. Your weight should be evenly distributed across both feet. You should try to maintain stability for 20 seconds with your hands on your hips and your eyes closed. I will be counting the number of times you move out of this position. If you stumble out of this position, open your eyes and return to the start position and continue balancing. I will start timing when you are set and have closed your eyes.”* Observe the athlete for 20 seconds. If they make more than 5 errors (such as lift their hands off their hips; open their eyes; lift their forefoot or heel; step, stumble, or fall; or remain out of the start position for more than 5 seconds) then this may suggest a concussion.

Any athlete with a suspected concussion should be IMMEDIATELY REMOVED FROM PLAY, urgently assessed medically, should not be left alone and should not drive a motor vehicle.

Charlottesville City Schools
Academic Accommodations and Classroom Behavioral Changes

Accommodations

Processing

- Increased time to complete assignments
- Breakdown complex directions
- Decreased length of assignments

Memory Deficits

- Written as well as verbal instruction
- Posted schedule and directions
- Frequent review of information

Attention

- Visual prompts
- Frequent breaks
- Preferential seating

Organizational Skills

- Study guide and/or timeline
- Provision of color coded materials
- Daily calendar for assignments and tasks

Lighting

- Dim lights if photo sensitive

Classroom Behavioral Changes

- Poor Attention and concentration
- Irritability and low frustration tolerance
- Differences in following directions or answering questions
- Reduced short term memory recall
- Delayed processing
- Easily distracted
- Inability to follow through with routing assignments
- Disproportional reaction to situations
- Repeating themselves
- Sensitivity to light and/or noise

Charlottesville City Schools Concussion Information for the Student-Athlete

What is a Concussion?

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Observed Signs

- Appears dazed or confused
- Does not understand simple instructions
- Does not have short term recall
- Appears clumsy or disoriented
- Appears irritable or fatigued
- Slow to answer questions
- Appears more emotional
- Vomiting
- Does not recall events before or after injury
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-

Reported Symptoms

- Headache or feeling of pressure
- Vision problem
- Nauseous
- Feeling dizzy or in a fog
- Complains of light or noise sensitivity
- Complains of ringing in the ears
- Complains of problems concentrating
- Complains of problems remembering

What to do if you think you have a concussion.

If you have taken a hard blow to the head or body and believe you have a concussion you should tell your coaches, AT, and parents. Also, if you see a teammate receive a hard blow to the head or body that starts to show any of the above signs be certain to tell your coaches and AT. If you do have a concussion, try to reduce the stress on your brain and allow appropriate time to heal.

Return to School and Normal Daily Activity

Concussions can affect your ability to do schoolwork, play video games, use a computer, drive, exercise and many other activities. Rest is the key to proper healing following a concussion. Decreasing the stress on the brain early after a concussion may lessen symptoms and shorten recovery time. If you attempt any activity that causes an increase in your symptoms you should stop the activity. Return to school should be done as a progression of gradually increasing periods of time. You should avoid areas or times of extreme noise or overstimulation, including noisy hallways or cafeterias as well as group socializing.

Return to Play

If not handled with care, concussions can lead to more severe medical problems, including death. Some signs and symptoms will resolve immediately, others will linger for days or weeks. It is important that you do not return to activity before you have completely healed from the concussion. If you obtain a second blow to the head before you symptoms from the first have ended then the possibility of long term effects is greater and there is a chance of a Second Impact Syndrome (SIS). SIS occurs when you have a second concussion before the initial injury has healed. This causes rapid brain swelling, long term effects on brain function and can be fatal. You will not be able to return to play until you are symptom free. When you no longer report any symptoms you may begin a slow progression back to activity as long as no symptoms return.

Short Term Effects

After an athlete sustains one concussion, they are more likely to sustain a second one, compared to others that have not been concussed. Repeat concussions, even when mild, can increase the risk of post-concussive symptoms, such as headaches, memory loss, difficulty concentrating, behavior or personality changes, extreme fatigue etc. These symptoms may last only a short time or could remain a problem to the student-athlete for months or longer.

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