Concussion Management and Education

I. Concussion Guidelines

Prince William County Public Schools (PWCS) is committed to providing information regarding the issues surrounding brain injuries and how they can affect the student’s abilities in the educational setting. PWCS is further committed to ensuring that students participating in school-sponsored activities (participating students) who sustain concussions are properly diagnosed, given adequate time to heal, and are comprehensively supported until they are symptom free. PWCS will provide training and education resources for staff at all grade levels.

These concussion guidelines are developed to meet the Code of Virginia § 22.1-271-5 and § 22.1-271.6 providing the policies and guidelines dealing with concussions and requiring each school division to develop policies and procedures regarding the identification and handling of suspected concussions. This regulation comports with forthcoming Virginia Board of Education guidelines and will be amended as necessary.

II. Definitions

A. A concussion is a serious injury to the brain resulting from the rapid acceleration or deceleration of brain tissue within the skull. Rapid movement causes brain tissue to change shape, which can stretch and damage brain cells. This damage also causes chemical and metabolic changes within the brain cells, making it more difficult for cells to function and communicate. The Centers for Disease Control and Prevention (CDC) estimates 3.8 million concussions occur each year.¹

B. A sport-related concussion (SRC) is a traumatic brain injury induced by biomechanical forces.² Several common features that may be utilized in clinically defining the nature of a concussive head injury include:

1. SRC may be caused either by a direct blow to the head, face, neck, or elsewhere on the body with an impulsive force transmitted to the head.
2. SRC typically results in the rapid onset of short-lived impairment of neurological function that resolves spontaneously. However, in some cases, signs and symptoms evolve over a number of minutes to hours.
3. SRC may result in neuropathological changes, but the acute clinical signs and symptoms largely reflect a functional disturbance rather than a structural

¹ concussionfoundation.org
² 2017 Concussion in Sport Group (CISG) consensus statement
injury and, as such, no abnormality is seen on standard structural neuroimaging studies.

4. SRC results in a range of clinical signs and symptoms that may or may not involve loss of consciousness. Resolution of the clinical and cognitive features typically follows a sequential course. However, in some cases symptoms may be prolonged.

C. Second Impact Syndrome occurs when a student athlete, who has already sustained a head injury, sustains a second head injury before symptoms have fully resolved from the first injury. Many times, this occurs because the student has returned to activity before his or her first injury symptoms resolve. Coaches, parents, and athletes must realize that days or weeks may be needed before concussion symptoms resolve. When a student receives a second blow to the head, it can result in loss of brain function, decreased blood supply, and increased intracranial pressure. The athletic community must recognize the signs and symptoms of concussion/mild traumatic brain injury (MTBI) and limit physical and cognitive activity until the symptoms have completely resolved.

D. An appropriate licensed health care provider (LHCP) is a physician, physician assistant, osteopath, or certified athletic trainer (AT) 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.

E. ImPACT is a computerized neuropsychological test and concussion assessment tool that measures several aspects of brain function, including attention span, working memory, sustained and selective attention time, response variability, non-verbal problem-solving, and reaction time.

F. Return-to-Play (RTP) means a participant may begin participation in a non-medically supervised practice or athletic competition.

G. Cognitive rest means limiting cognitive exertion and careful management of neurometabolic demands on the brain during recovery.

H. Return-to-School (RTS) means instructional modifications that support a controlled progressive increase in cognitive activities while the student recovers from a brain injury (i.e., concussion) allowing the student to participate in classroom activities and learn without worsening symptoms and potentially delaying healing.

I. Non-interscholastic youth sports program means a recreational athletic program organized for youth that is not affiliated with a public or non-public school.
Concussion Management Team (CMT) is a school-based team formed to support and ensure continuity of care and support for a student recovering from a concussion injury. The concussion management team may include, but is not limited, to the following: student’s licensed or personal health care physician, school administrator, school counselor, school psychologist, school nurse, teachers, coaches, athletic trainer, and parents.

III. Concussion Policy Review Team (CPRT)

PWCS shall form a Divisionwide CPRT that shall refine and review local concussion management policy and the concussion education content on an annual basis. This team will be comprised of a high school and middle school administrator; high school and middle school athletic administrator; an AT from the School Division; appropriate licensed health care provider (PWCS medical advisor and/or team physician); Supervisor of School Health Services; Supervisor of Student Activities; School Health Advisory Board member; high school and middle school coach; high school and middle school parent; and high school student. The Supervisor of Student Activities shall be responsible for scheduling this annual review.

IV. Training and Education

A. All coaches, school health nurses, certified athletic trainers, health and physical education staff, volunteer coaches, participating students, and parents/guardians of participating students will complete concussion training annually that shall include the following:
   1. Recognition of the signs and symptoms associated with a concussion and the impact on the participating student;
   2. Process for reporting a concussion;
   3. Strategies to reduce the risk of concussions;
   4. Description of PWCS concussion management process;
   5. Obtaining proper medical treatment for a person suspected of having a concussion; and
   6. Protocol for RTP or training after sustaining a concussion and protocol for RTS.

B. All coaches, certified athletic trainers, health and physical education staff, and volunteer coaches shall be required to review and complete the CDC or National Federation of State High School Associations (NFHS) training annually. Once the training is completed, a copy of the completion certificate shall be kept on file by the local school. The athletic administrators from each school shall provide the list of staff that has met this requirement to the Office of Student Activities.

C. Coaches training – All coaches shall actively participate in the face-to-face concussion training for their respective seasons.
D. Annually, all administrators and staff shall receive updates and review the CDC’s fact sheets on concussion information and management. Staff will become familiar with their role in the recovery process, identification of the recurrence of symptoms, and protocol for concussion injury management.

E. Parent and Student Education – Prior to participation in any extracurricular athletic activity, each participating student and the participating student’s parent or guardian shall review, on an annual basis, information on concussions provided by the School Division. After having reviewed materials describing the short- and long-term health effects of concussions, each participating student and the participating student’s parent or guardian shall sign the “Parent/Student Activities Guide” which shall be approved in advance by the Virginia Board of Education. These signatures will serve to acknowledge receipt, review, and understanding of all information.

F. High school directors of student activities and middle school athletic coordinators shall be responsible for providing the dates of the face-to-face training and collecting the signed documents from in-season student athletes. Face-to-face training shall be strongly encouraged, well-advertised, and offered prior to each season in varied locations around the county. Multiple sport student athletes shall not have to repeat training in the current year if proper documentation exists.

G. Certified Athletic Trainer Training Requirement - AT staff will be trained to administer the ImPACT Assessment, the Sideline Assessment for Concussions (SAC), Standardized Assessment of Concussion, Virginia Neurological Index (SAC VNI), and the Acute Concussion Evaluation (ACE).

V. Student Athlete Care

A. The following athletes shall complete the baseline ImPACT test as soon as possible and prior to the first athletic contest of each season:
   1. All current ninth and 11th grade students;
   2. Student athletes that have not been previously tested regardless of grade level; and
   3. Any student athlete with a history of concussions.

ImPACT baseline testing can be performed on any school-based computer with a network connection. Multiple student athletes may be tested at one time; however, staff supervision and moderation are required to ensure students are encouraged to perform at their best and are doing so properly. All student athletes tested on the baseline test or post-injury test must be monitored by an AT. At the start of the testing, the demographic information should be entered systematically by the supervising staff member.

B. Post-Injury Care - Any student athlete suspected by their coach, AT, or team physician of sustaining a concussion or brain injury in a practice or game shall be
immediately removed from the activity. A student athlete who has been removed from play, evaluated, and suspected to have a concussion or brain injury, shall not return to play that same day nor until evaluated by an appropriate LHCP and in receipt of written clearance to return to play from such LHCP. The LHCP evaluating student athletes suspected of having a concussion or brain injury may be a volunteer.

Middle school students suspected of receiving a head injury shall not be permitted to re-enter the practice or game on the same day. Middle school staff shall contact the parent/guardian and/or emergency rescue to have the student placed under physician’s care as soon as possible.

At the time of injury, for high school athletic events, sideline testing will be completed by the AT or team physician using the SAC VNI assessment, or other appropriate assessments such as Sideline Concussion Assessment Tool (SCAT-V), the SAC, and the Balance Error Scoring System (BESS). Within 48-72 hours post-injury, the athlete will complete ImPACT follow-up testing. Evaluation findings and home care recommendations will be completed on the ACE form by the AT.

Students sustaining a concussion who are reporting numerous symptoms such as headache, dizziness, fatigue, and inability to concentrate shall be encouraged to limit scholastic activities and other cognitive stressors. Cognitive rest shall be an important component for the recovery from concussion injuries.

Student recovery from a concussion requires a collaborative approach among school professionals, health care providers, parents, and students. All PWCS teachers who have been informed by parents or school staff that a student has sustained a concussion shall communicate in a timely manner with school administrators and school health nurses, athletic trainers, and essential staff to ensure appropriate accommodations are available during recovery. This cognitive rest may require scholastic modifications varying on a continuum from not attending school while symptomatic to attending school with academic accommodations.

In the event that a suspected concussion occurs at an activity and no AT or emergency medical personnel are present, the coach, sponsor, or point of contact will remove the student from the activity immediately and will follow the emergency protocol explained in the AT manual and the PWCS Coaches Handbook.

If the concussion is evaluated by an AT in another county, that county’s sideline evaluation policy will be followed and the PWCS AT will continue follow-up care after 48-72 hours.

The athlete shall be removed from play until symptomatic and neurocognitive testing is within an acceptable range.
C. Protocol for RTS

1. A student recovering from a brain injury shall gradually increase cognitive activities progressing through *some or all* of the following phases. Some students may need total rest with a gradual return to school, while others will be able to continue doing academic work with minimal instructional modifications. The decision to progress from one phase to another should reflect the absence of any relevant signs or symptoms and should be based on recommendation of the student’s appropriate LHCP in collaboration with school staff, including teachers, school counselors, school administrators, psychologists, nurses, clinic aides, or others as determined by the CMT.

   a. Home: Rest
      Phase 1: Cognitive and physical rest may include:
      - Minimal cognitive activities – limit reading, computer use, texting, television, and/or video games;
      - No homework;
      - No driving; and
      - Minimal physical activity.
      Phase 2: Light cognitive mental activity may include:
      - Up to 30 minutes of sustained cognitive exertion;
      - No prolonged concentration;
      - No driving; and
      - Limited physical activity.

      Student will progress to part-time school attendance when able to tolerate a minimum of 30 minutes of sustained cognitive exertion without exacerbation of symptoms or re-emergence of previously resolved symptoms.

   b. School
      Phase 3: Maximum instructional modifications including, but not limited to:
      - Shortened days with built-in breaks;
      - Modified environment (e.g., limiting time in hallway, identifying quiet and/or dark spaces);
      - Established learning priorities;
      - Exclusion from standardized and classroom testing;
      - Rest and recovery once out of school; and
      - Elimination or reduction of homework.

      Student will progress to the moderate instructional modification phase when able to tolerate part-time return with moderate instructional modifications without exacerbation of symptoms or re-emergence of previously resolved symptoms.
Phase 4: Moderate instructional modification including, but not limited to:
- Established priorities for learning;
- Limited homework;
- Alternative grading strategies;
- Built-in breaks;
- Modified and/or limited classroom testing, exclusion from standardized testing; and
- Reduction of extra time, assistance, and/or modification of assignments as needed.

Student will progress to the minimal instructional modification phase when able to tolerate full-time school attendance without exacerbation of existing symptoms or re-emergence of previously resolved symptoms.

c. School: Full-time
   Phase 5: Minimal instructional modification – instructional strategies may include, but are not limited to:
   - Built-in breaks;
   - Limited formative and summative testing, exclusion from standardized testing;
   - Reduction of extra time, assistance, and modification of assignments; and
   - Continuation of instructional modification and support in academically challenging subjects that require cognitive overexertion and stress.

Student will progress to non-modified school participation when able to handle sustained cognitive exertion without exacerbation of symptoms or re-emergence of previously resolved symptoms.

Phase 6: Attends all classes; maintains full academic load/homework; requires no instructional modifications.

1. Progression through the above phases shall be governed by the presence or resolution of symptoms resulting from a concussion experienced by the student including, but are not limited to:
   a. Difficulty with attention, concentration, organization, long-term and short-term memory, reasoning, planning, and problem solving;
   b. Fatigue, drowsiness, difficulties handling a stimulating school environment (e.g., sensitivity to light and sound);
   c. Inappropriate or impulsive behavior during class, greater irritability, less able to cope with stress, more emotional than usual; and
   d. Physical symptoms (e.g., headache, nausea, dizziness).
2. Progression through gradually increasing cognitive demands should adhere to the following guidelines:
   a. Increase the amount of time in school;
   b. Increase the nature and amount of work, the length of time spent on the work, or the type or difficulty of work (change only one of these variables at a time);
   c. If symptoms do not worsen, demands may continue to be gradually increased; and
   d. If symptoms do worsen, the activity should be discontinued for at least 20 minutes and the student allowed to rest.
      i. If the symptoms are relieved with rest, the student may reattempt the activity at or below the level that produced symptoms; and
      ii. If the symptoms are not relieved with rest, the student should discontinue the current activity for the day and reattempt when symptoms have lessened or resolves (such as the next day).

3. If symptoms persist or fail to improve over time, additional in-school support may be required with consideration for further evaluation. If the student is three to four weeks post-injury without significant evidence of improvement, a 504 plan should be considered.

4. A student athlete shall progress to a stage where he or she no longer requires instructional modifications or other support before being cleared to return to full athletic participation (RTP).

   The American Academy of Pediatrics (AAP) Return-to-School Following a Concussion Guidelines (October 2013), and the American Medical Society for Sports Medicine (AMSSM) Position Statement (2013), are available online to assist health care providers, student athletes, their families, and school divisions, as needed.

D. Protocol for RTP

1. No member of a school athletic team shall participate in any athletic event or practice the same day he or she is injured and:
   a. Exhibits signs, symptoms, or behaviors attributable to a concussion; or
   b. Has been diagnosed with a concussion.

2. No member of a high school athletic team shall return to participate in an athletic event or training on the days after he/she experiences a concussion unless all of the following conditions have been met:
   a. The student no longer exhibits signs, symptoms, or behaviors consistent with a concussion at rest or with exertion;
b. The student is asymptomatic during or following periods of supervised exercise that is gradually intensifying;

c. Successful completion of neurocognitive post-injury testing through ImPACT; and

d. The student receives a written medical release from a LHCP.

3. No member of a middle school athletic team shall return to participate in an athletic event or training on the days after he/she experiences a concussion unless all of the following conditions have been met:

a. The student no longer exhibits signs, symptoms, or behaviors consistent with a concussion at rest or with exertion;

b. The student is asymptomatic during or following periods of supervised exercise that is gradually intensifying; and

c. The student receives a written medical release from a LHCP.

E. In the event that a student athlete is evaluated for a concussion/MTBI by a LHCP other than an AT, documentation is required from a medical doctor, a doctor of Osteopathy, Neuropsychologist Ph.D. competent in management of concussions, or a nurse practitioner licensed by the Virginia State Board of Nursing.

Clearance for RTP must come from the team physician, AT, or the primary healthcare provider. With supporting information, the AT has the discretion to question and disagree with a LHCP's decision regarding RTP. In such cases, the School Division medical advisor may be asked to intervene before requesting a second opinion. Once return to play has been approved, the AT will begin to implement a progressive RTP program for the student athlete.

RTP – Using an individualized step progression, the athlete should continue to proceed to the next level if asymptomatic at the current level. Generally, each step should take 24 hours so that an athlete would take approximately one week to proceed through the full rehabilitation protocol once they are asymptomatic at rest and with provocative exercise. If any post-concussion symptoms occur while in the stepwise program, then the patient should drop back to the previous asymptomatic level and try to progress again after a further 24-hour period of rest has passed.
Example of the Level of Progression for Return-To-Play

<table>
<thead>
<tr>
<th>Rehabilitation phase</th>
<th>Functional exercise at each stage of rehabilitation</th>
<th>Objective of each phase</th>
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<tbody>
<tr>
<td>Phase 1: No activity</td>
<td>Complete physical and cognitive rest.</td>
<td>Recovery</td>
</tr>
<tr>
<td>Phase 2: Light aerobic exercise</td>
<td>Walking, swimming, or stationary cycling keeping intensity &lt;70 percent maximum predicted heart rate. No resistance training.</td>
<td>Increase heart rate</td>
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<tr>
<td>*Phase 3: Sport-specific exercise</td>
<td>Skating drills in ice hockey, running drills in soccer. No head impact activities.</td>
<td>Add movement</td>
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<tr>
<td>(*Student must complete Return-to-School before entering Phase 3 of Return-to-Play)</td>
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<tr>
<td>Phase 4: Non-contact training drills</td>
<td>Progression to more complex training drills (e.g., passing drills in football and ice hockey. May start progressive resistance training).</td>
<td>Exercise, coordination, cognitive load</td>
</tr>
<tr>
<td>Phase 5: Full contact practice</td>
<td>Following medical clearance; participate in normal training activities.</td>
<td>Restore confidence, assessment of functional skills by coaching staff</td>
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<tr>
<td>Phase 6: Return to play</td>
<td>Normal game play.</td>
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F. Helmet Replacement and Recondition Procedures

1. Helmets used for athletic participation must be National Operating Committee on Standards for Athletic Equipment (NOCSAE) certified by the manufacturer at time of purchase. (Helmets included are football, lacrosse, softball, and baseball.)
2. Football helmets that are 10 years old from the manufacturing date will be removed from use.
3. Helmets must be NOCSAE inspected according to the manufacturer’s recommendations. Reconditioned helmets must be NOCSAE recertified by a certified reconditioning vendor.
4. It is recommended that all School Division-owned helmets receive recertification if used during a previous season before being used for an upcoming season.
5. A minimum of two staff members at each school will be trained in the proper fitting of football helmets. Football helmets must be fitted properly at the time of issuance by these trained staff members.
6. Personal helmets used for football, lacrosse, softball, and baseball, must meet NOCSAE standards and be checked by School Division staff to ensure that the helmet has not been modified from its intended design.
VI. Community Involvement and Community Information Access

Non-interscholastic youth sports programs utilizing public school property shall:

A. Establish policies and procedures regarding identification and handling of suspected concussions in student athletes consistent with either the School Division’s policies and procedures; or

B. Follow the School Division’s policies and procedures as set forth by the School Division.

C. Concussion training resources and materials will be made available on the PWCS athletic website and on each high school and middle school athletic web page.

D. Schools shall make every effort to collaborate with organizations sponsoring athletic activity for student athletes on school property to provide materials and training opportunities related to concussion management.

The Level Associate Superintendents and the Associate Superintendent for Student Learning and Accountability (or designee) are responsible for implementing and monitoring this regulation.

This regulation and the accompanying policy will be reviewed annually.