Concussions in High School Sports

Loudoun County Public Schools
Division of Athletics

IMPORTANT INFORMATION—READ CAREFULLY

1. Concussion Facts:
- A concussion is a brain injury caused by a bump, blow, or jolt to the head, face, neck, or body which results in a temporary disruption of normal brain function. A concussion occurs when the brain is violently rocked back and forth or twisted inside the skull. A student-athlete does not have to lose consciousness to suffer a concussion.
- Conussions can occur in all sports, not just contact sports. All athletes are at risk. An athlete does not have to sustain a blow to the head to suffer a concussion.
- A concussion may have multiple symptoms. Many symptoms appear immediately after the injury, while others may develop over the next several days or weeks.
- Concussion symptoms may last from a few days to several months.
- A concussion can affect a student-athlete’s ability to do schoolwork and other activities.
- A student-athlete may return to light physical and cognitive activities while still having symptoms if supervised by an approved medical professional.
- Conussions are treatable injuries. Most student-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 a student-athlete sustains a second concussion during this period, the risk of permanent brain injury increases significantly and the consequences of a seemingly mild second concussion can be very severe, and even result in death (i.e., "Second Impact Syndrome").

1. Concussion Signs and Symptoms:
- Headache
- Visual Problems
- Feeling mentally foggy
- Irritability
- Nausea
- Fatigue/Feeling tired
- Feeling slowed down
- Sadness
- Dizziness
- Sensitivity to light/noise
- Difficulty remembering
- More emotional
- Balance Problems
- Numbness/ Tingling
- Difficulty concentrating
- Nervousness
- Disorientation
- Dazed or confused
- Personality changes
- Memory issues
- Drowsiness
- Sleeping less than usual
- Sleeping more than usual
- Trouble sleeping

2. Actions if a Student-Athlete Suffers a Suspected Concussion Event:
- Student-athlete shall be immediately removed from play, be it a game or practice and may not return to play or practice on that same day.
- Continuing to participate in physical activity after a concussion that same day can lead to worsening concussion symptoms, increased risk for further injury, and even risk of death. WHEN IN DOUBT, GET THEM OUT.
- Student-athlete or parent/guardian must contact the school Athletic Trainer within 24 hours and have a follow-up evaluation performed by an approved healthcare professional within 48 hours if possible.
- Student-athlete must be evaluated by an Approved Healthcare Professional and be cleared before returning to play or practice. The healthcare professional’s written diagnosis indicating the student-athlete’s status should be provided to the Athletic Trainer for further clearance. Approved Healthcare Professionals include Certified Athletic Trainer (ATC) Medical Doctor (MD), Doctor of Osteopathic Medicine (DO), Physician Assistant (PA), Certified Nurse Practitioner (CNP), and/or Neuropsychologist.
- The student-athletes will be placed in the appropriate RTI and RTP phase by the Athletic Trainer. They may gradually progress through some or all of the following phases in a stepwise fashion to allow the brain to re-adjust to cognitive and physical exertion. Referral to a concussion specialist may be recommended to a student-athlete when athletic trainer feels it is appropriate.

3. Post-Concussion Assessment and Neurocognitive Testing
- In an effort to provide for the safety of our student-athletes, LCPS offers the Immediate Post-Concussion Assessment and Cognitive Testing (ImpACT) program as a tool to assist in the evaluation and management of concussions. ImpACT is widely used and the most scientifically validated computerized concussion evaluation tool. Given the inherent difficulties in concussion management, it is important to manage concussions on an individualized basis and to perform baseline testing and/or post injury testing. This type of concussion assessment can help to objectively evaluate the concussed student-athlete’s post-injury condition and track recovery for appropriate return to learn and safe return to play, thus preventing the cumulative effects of chronic injury. The decision and timing for proper post-injury testing will be determined by the supervising athletic trainer. A “baseline” ImpACT evaluation is conducted by the LCPS athletic trainer with assistance from the coaches trained to administer baseline testing.
- The athletic trainer may also use tools such as a vestibular-ocular motor screening (VOMS), sideline evaluation (SACVNI, SCAT3, etc.), thorough history and input from necessary stakeholders to get a better idea of extent of injury and course of action.

4. Behavioral Management Strategies—After the initial 24 hours following a concussion, the student-athlete should maintain a regulated schedule:
- Diet: Eat breakfast, lunch and dinner each day. Reduce workload/work with teachers to modify or prioritize assignments. Homework as tolerated. Make sure you get the number of hours of sleep you need. Build in breaks as needed if symptoms worsen during class. Modified or limited classroom testing. Consider alternative testing methods (oral/open book/take home test). Avoid doing too much, especially if you are having trouble with concentration. If you are falling asleep during class, do not continue. Call your teacher or principal to see if you can do some work at home instead.
- Hydration: Drink water (8-10 glasses per day).
- Sleep: Stick to a strict sleep schedule with a regular bedtime and wake-up time. It is generally recommended that student-athletes obtain 7-9 hours, with limited to no naps of no longer than 30 minutes.
- Physical Activity: It is recommended that the student-athlete take walks or ride a stationary bike following the injury.
- Lifestyle: The current recommendation for concussion recovery is to maintain a normal lifestyle as much as possible and reduce the amount of normal routine modifications.
- Stress: Try to reduce stress in the student-athlete to help avoid nervousness and increased anxiety.

5. What Must Be Done By Student Athletes, Parents, and Coaches:
- All parties must learn to recognize the “Signs and Symptoms” of concussion as listed above.
- Student-athletes should immediately inform the athletic trainer and/or coach if they or a teammate is experiencing or showing signs/symptoms of a concussion.
- Work with school nurse, counselor and teacher to discuss modifications and classroom issues.
- Report concussions to the athletic trainer and coaches to help monitor injured student-athletes as they move to the next sports season.

The student-athlete must remain asymptomatic for 24 hours to progress to the next stage. If symptoms return during any of the stages, the student-athlete must return to the previous stage.

RETURN TO LEARN
- A student recovering from a brain injury shall gradually increase cognitive activities progressing through some or all of the following phases based on evaluation and input by parent/guardian, teachers, and school staff.
- Return to Learn: Restricted participation.
- Red: Home/Rest
- No school
- Rest quietly, as needed, but stick to a regular sleep schedule
- Limit reading, computer use, texting, video games, etc. as tolerated
- Homework as tolerated
- Drink plenty of fluids and eat light protein snacks every 2-3 hours
- Light physical activity, like going outside for a short distance walk
- No strenuous activity

RETURN TO PLAY
- If symptoms occur during any of the following steps, the student-athlete must cease activity and be re-evaluated and cleared by his/her health care provider.
- Return to Play: Full participation.
- Light aerobic conditioning in quiet area (Athletic Training Clinic)
- No impact activities
- Balance activities
- Exercises that limit head movements
- Core exercises without head movements
- Limit concentration activities
- Yellow: School full-time as tolerated with academic modifications and rest breaks as needed
- Resume full participation in competition
- Moderate aggressive aerobic exercise (intervals, stair running)
- All forms of resistance exercises
- Dynamic warm-ups
- Impact activities (running, plyometrics)
- Challenge positional changes (burpees, mountain climbers)
- More aggressive sport-specific activities
- Incorporate concentration challenges (visual game)
- Maximum exertion sport specific activities but avoiding contact
- Have athlete participate in non-contact practice
- If after Stage 4, there are no increase in symptoms, the student-athlete will be given a second post-injury ImPACT test before progressing to Stage 5. If the student-athlete does not clear the ImPACT test, the athletic trainer will proceed as they feel necessary.
- Full participation with contact in practice and Physical Education classes
- Full participation in competition
- Game-play with release from Approved Healthcare Professional (Certified Athletic Trainer, Medical Doctor, Doctor of Osteopathic Medicine, Physician Assistant, Certified Nurse Practitioner or Neuropsychologist).
<table>
<thead>
<tr>
<th>Level</th>
<th>Temperature and/or Wind Chill Readings</th>
<th>Activity Modifications</th>
<th>Attire Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Above 32° F</td>
<td>Normal activities</td>
<td>Notify Administrators, Coaches and Students for the potential for cold injuries</td>
</tr>
<tr>
<td>Yellow</td>
<td>21° - 32° F</td>
<td>Normal activities</td>
<td>Recommendation that athletes should have ears and head covered and light gloves if permitted by officials.</td>
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<tr>
<td></td>
<td></td>
<td>Provide opportunities and facilities for rewarming. Consideration given to game start times and length of halftime.</td>
<td>All athletes must wear underlayers of clothing (covering arm and legs) that meet uniform guidelines for games. Athletes must wear long sleeve shirt/sweatshirts and pants for practices.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Notify administrators, coaches and student-athletes about the potential for cold injuries.</td>
<td>Athletes that are not properly dressed must leave the field and may only return when properly dressed.</td>
</tr>
<tr>
<td>Red</td>
<td>11° - 20° F</td>
<td>Outdoor activities are limited to one hour.</td>
<td>Recommendation that athletes should have ears and head covered and light gloves if permitted by officials.</td>
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<tr>
<td></td>
<td></td>
<td>If the game is in progress prior to the temperature dropping below 20° F, the game may continue to completion.</td>
<td>All athletes must wear underlayers of clothing (covering arm and legs) that meet uniform guidelines for games. Athletes must wear long sleeve shirt/sweatshirts and pants for practices.</td>
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<tr>
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<td>No games may start if the temperature is 200 F or below prior to the start</td>
<td>Recommend all athletes wear three layers of clothing if possible. Layer closest to the skin should be a cold weather garment. The second layer should be wool or fleece for warmth. The third layer should be a wind and rain-proof jacket.</td>
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</tr>
<tr>
<td>Black</td>
<td>10° or below</td>
<td>No outdoor activities</td>
<td></td>
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</tbody>
</table>

**Reminders**

- Have a communication plan between administration and health care team before situations arise
- Use on-site weather tracking device for most accurate measurement; otherwise, use cellular applications such as Weather Channel or WeatherBug
- When precipitating, advance modifications to next “Level”
- For wind chill temperatures under 32° F officials, administration and medical staff can discuss game modifications (shortened time, rewarming, etc.)
- Remove wet clothing and replace with dry clothing when possible
- Encourage proper hydration and nutrition
- Be alert for signs and symptoms of cold injury
- When rewarming, gradually apply heat to affected area with warm (not hot) water or ambient temperature. For extreme cold injuries, do not rub affected area
### Guidelines for Extracurricular Activity during Extreme Hot and Humid Weather
(Sources: NATA and Virginia High School League)

<table>
<thead>
<tr>
<th>Level</th>
<th>WBGT</th>
<th>Heat Index</th>
<th>Duration</th>
<th>Attire</th>
<th>Fluid Consumption</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Under 82.0</td>
<td>Under 94</td>
<td>3 hour maximum per session. 5 hour maximum per day.</td>
<td>Full Gear</td>
<td>Insist that 4 oz. of water be ingested every 20 minutes.</td>
<td>Provide minimum of 3 water breaks per hour. Minimum duration of 3 minutes per break.</td>
</tr>
<tr>
<td>2</td>
<td>82.0-86.9</td>
<td>95-99</td>
<td>2.5 hours maximum.</td>
<td>15 minutes of rest each hour.</td>
<td>Helmet and shoulder pads Insist that 6–8 oz. of water be ingested every 20 minutes with helmet removal.</td>
<td>Provide minimum of 4 water breaks per hour. Minimum duration of 4 minutes per break. Cross Country on campus.</td>
</tr>
<tr>
<td>3</td>
<td>87.0-89.9</td>
<td>100-102</td>
<td>2 hours maximum. 15 minutes of rest each hour. Minimum of 2 hours of rest between practices.</td>
<td>Helmet only</td>
<td>Insist that 8–10 oz. of water be ingested every 15 minutes with helmet removal.</td>
<td>Provide minimum of 4 water breaks per hour. Minimum duration of 4 minutes per break. Cross Country on campus.</td>
</tr>
<tr>
<td>4</td>
<td>90.0-92.0</td>
<td>103-104</td>
<td>1 hour maximum. 20 minutes of rest during that hour.</td>
<td>No protective equipment. Shirts and shorts only.</td>
<td>Insist that 8-10 oz. of water be ingested every 15 minutes.</td>
<td>Reduce intensity of activity. No conditioning activities. Cross Country on campus.</td>
</tr>
<tr>
<td>5</td>
<td>Over 92.1</td>
<td>105</td>
<td>NO PRACTICE OUTDOOR</td>
<td>The Heat Policy also applies to indoor practices.</td>
<td>Re-hydrate 24 oz. for every pound of body weight lost per day.</td>
<td>Follow the Heat Policy for practices conducted indoors.</td>
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</tbody>
</table>

### RECOMMENDATIONS:
- Replace fluids at a rate of 24 fluid ounces for every pound of body weight lost after exercise.
- Encourage athletes to wear light colored, loose clothing during activity in hot weather.
- Encourage athletes to wear sunscreen on exposed skin during hot, sunny conditions.
- Make readily available an adequate fluid supply to athletes at all times during activity in hot weather.
- The following athletes are at increased risk for heat related illness/injury and should be monitored closely or placed on a modified participation schedule.
  - Individuals poorly acclimatized or poorly conditioned
  - Athletes having a pre-existing dehydrated state (recent fever or gastro-intestinal illness) or pre-existing heat injury
  - Athletes taking certain medications including diuretics, antihistamines, beta blockers and anticolinergics
  - Overweight athletes
- Discourage athletes from taking caffeine, energy, ergogenic, and/or dietary supplements such as Creatine and Ephedra products, as these products may cause an increase in dehydration and heat related illness and/or injury.