Concussions are a type of mild traumatic brain injury (TBI) resulting from a bump, blow, or jolt to the head, or to the body that is transmitted to the head. The actions recommended in this report, and a school’s concussion management plan, apply to any perceived TBI.

Managing the Risks of Athlete Concussions

With good reason, concussions have become a top safety concern for youth sports. According to the Centers for Disease Control and Prevention, from 2001 to 2009 there was a 57 percent increase in emergency room visits for concussions and other traumatic brain injuries (TBI) by youth ages 19 and younger. Despite this increasing frequency, the culture in youth athletics often promotes competition over safety. The Institute of Medicine’s (IOM) October 2013 report notes that many youth athletes don’t report or under-report concussion symptoms to avoid removal from play. Schools must also comply with state laws that target youth sports-related concussions. Since 2009, all 50 states and the District of Columbia passed laws to address TBI.

The liability risks posed by concussions further complicate this picture. In a recent study by United Educators (UE), a liability insurance provider focused exclusively on education, concussions comprised 70 percent of losses, including legal fees and settlements, for K-12 athletics claims. And over the last four years, all 50 states passed laws on youth concussion safety. Critical to school and athletic administrators is a concussion management plan. In this report, UE recommends actions to create a sound plan for promoting athlete safety.
UE Claims Study
Between 2003 and 2012, UE received 157 K-12 athletics claims from independent and public schools. Of those claims, 38% involved TBI—including concussions. In a study covering school sports and recreation programs, six out of 10 concussion claims occurred during competition, and four out of 10 during practice. These claims cost UE and its members more than $3 million in losses.

Contact sports generated the most claims. Seven sports accounted for 95 percent of the study’s concussions.

Soccer Football Basketball Hockey Softball Track & Field

The seven most common sports did not generate all of the study’s financial losses. Rather, four sports accounted for most claims losses from concussions.

Baseball Track & Field Football Softball

A collision between two or more athletes was the cause in 48% of the concussion claims. However, athlete collisions did not result in any financial losses to UE and its members. In litigation resulting from head injuries, the most commonly cited liability cause of claims for athlete concussions was coach negligence (45 percent of claims) and facility defects (55 percent of claims). Examples of coach negligence and facility defects include:

Coach Negligence
- A softball player sustained a concussion after her coach hit the ball toward her head.
- A football player sustained a concussion when a teammate threw a football at his head when a coach wasn’t present.
- A coach told track and field athletes they could practice unsupervised, and one was hit in the head with a discus.
- A football player received a concussion during practice. After telling his coach he had a headache, the student was instructed to leave school early but was assured he could play at the next game. At the game, the player was hit again and went into a coma suffering severe brain damage.
Facility Defects

- A baseball player was struck in the head by a bat thrown from the batters box because the dugout was too close to the field.
- A quarterback fell into a coma when he was forced out of bounds and struck his head on a metal object protruding from the ground.
- A softball player struck her head on an improperly located foul pole. The third party that owned the field did not have a contract with the school.

Actions for Managing Concussion Risks

To improve safety and reduce liability, create a concussion management plan. To account for differences in state law and emerging medical research, consult with a qualified attorney and medical professional in developing your plan. In addition, the following practices are recommended.

I. Preparation

Before a student is allowed to participate in athletics, consider these actions.

Action #1: Educate and train athletes, parents, coaches, and other staff. Athletes often practice and play when trained medical personnel are not available. The decision to remove an athlete from play often falls on coaches, parents, and players. Providing education and training can improve the institution's response.

Athletes and Parents

Students are usually the first to notice symptoms in themselves and their teammates. Parents see student athletes more than coaches, teachers, or doctors. Consequently, schools should educate athletes and parents on concussion, including:

- Their seriousness
- Signs and symptoms
- The importance of reporting any signs and symptoms they witness or experience

Education can take many forms, and may include in-person sessions as well as online information.

Coaches

Coaches are often the first responders and can identify concussion symptoms before a player does. Their authority and attitude toward concussions sets the tone for the entire team. Coaches need training on the:

- Potential dangers of concussions
- Signs and symptoms
- Importance of physical and cognitive recovery following a concussion
- School’s concussion management policy
Faculty and Staff

Teachers and administrators have a stake in concussion management, too. Concussion symptoms that go unnoticed may become evident in the classroom. Also, while most concussion symptoms resolve within two weeks, a two-week absence can weaken academic performance.

Educate faculty and staff—even those not involved in athletics—on:

- The signs and symptoms of concussions
- How a concussion affects academic performance
- How to minimize time lost from school without compromising recovery
- The institution's policy on concussion management and cognitive recovery

Action #2: Document the school’s education and training on the risks of athletic participation.

Documenting concussion education efforts and demonstrating that students and parents understood the risks of athletic participation can help reduce liability. Moreover, in the event of litigation, a written record provides evidence that the institution met its duty of care. Each year, schools should require athletes to sign a narrowly tailored assumption of risk form for each sport, acknowledging:

- A concussion is a potentially serious head injury that can result in brain injury or death
- Participating in their sport may result in a head injury or concussion
- Purposeful head and neck contact in any sport is not permitted
- Helmets, face shields, mouth guards, and other protective equipment do not completely prevent concussions
- They will immediately notify an authority if they suspect a teammate has a concussion
- They will immediately report signs and symptoms of a concussion to an authority and not return to play

Parents and athletes age 18 and older should sign a waiver of liability for each sport. Consult with legal counsel regarding enforceability of waivers signed by minors.

Coaches, school personnel, and any others trained by the institution should sign a form acknowledging:

- That concussion education was provided
- What information was covered in the training
- Their promise to adhere to the institution's concussion policy

Action #3 Prohibit coaches from serving as the primary supervisor for athletics health care providers.

Athletics health care professionals, such as team doctors or athletic trainers, should have unchallenged authority to determine the removal and return-to-play of injured athletes. A coach's top priority may be competing, not athlete well-being. Athletics medical professionals, not coaches, are usually best positioned to identify health problems. To avoid a conflict of interest, prohibit coaches from serving as the direct supervisor for athletics health care providers and avoid giving coaches sole hiring or firing authority over them.
Action #4: Conduct pre-participation physical exams. Before the first practice or try-out, potential student athletes should receive a physical evaluation and clearance by a licensed medical professional. Athletic pre-participation exams (PPE) should be conducted by a physician experienced with athlete physicals.

Some schools conduct baseline tests in which a trained health professional may assess an athlete’s history of concussions, balance, or brain and eye function. Results are compared to a similar exam conducted when an athlete has a suspected concussion.

To be financially prudent, schools should consult with legal counsel on whether baseline evaluations are required under state laws or are otherwise advisable. For example, the IOM report notes that “although baseline testing is common practice, studies provide mixed (and limited) evidence concerning the utility and cost-effectiveness of such testing.”

Action #5: Develop an emergency action plan.
Coaches, administrators, volunteers, and athletes should know what to do when a catastrophic injury occurs. The National Federation of State High School Associations recommends that schools create a venue-specific, emergency action plan (EAP) that delineates personnel roles and actions in the event of a TBI. A school’s EAP should:

• Be developed with input from legal counsel, administrators, coaches, and health care providers
• Delineate personnel roles in an emergency
• Identify methods of communication and contact information for emergency medical responders
• Note the location of emergency equipment and nearby trauma centers
• Plan for emergency transportation
• Identify the location of nearby trauma centers

Post the plan in a prominent place at venues used for athletic practices or competition. Provide copies to coaches, administrators, volunteers, and others involved in athletics. Annually review, revise, and practice your school’s plan. Schools should test their plan through audits, table-top exercises, role playing, and disaster drills.

Action #6: Understand the limitations of equipment in preventing concussions.
While protective equipment is important for preventing many types of injury, none eliminates the risk of concussions, according to the IOM. In fact, wearing protective devices may embolden athletes to take risks. Educate athletes about the limitations of helmets, mouth guards, and other equipment in preventing concussions. Address these limitations in the athlete’s assumption of risk or waiver form. In any event, a school should ensure its equipment is certified by guidelines published by the National Operating Committee on Standards for Athletic Equipment and used and maintained in accordance with manufacturer’s instructions.
II. Response

When responding to concussions, consider the following steps.

**Action #7: Immediately remove from play any athlete displaying the signs and symptoms of a concussion.** The first challenge in responding to a concussion is recognizing the signs and symptoms and removing a player for further evaluation. In several UE concussion claims, athletes who showed concussion symptoms were not promptly removed from play, which exacerbated their injuries and increased the school’s liability. When any concussion signs or symptoms are present, immediately remove an athlete from play. Coaches should never tell an athlete to “shake it off” or to return to play when concussion symptoms are present. Heed the CDC’s recommendation of “when in doubt, sit them out.” Many of these symptoms may not develop for several hours after an injury. In fact, according to the CDC, many concussions are not identified until 24 hours or more after the injury.

<table>
<thead>
<tr>
<th>Common Concussion Signs and Symptoms</th>
</tr>
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<tbody>
<tr>
<td>Physical: Headache, fuzzy or blurry vision, dizziness, fatigue, drowsiness, sensitivity to light, sensitivity to noise, balance problems, nausea, vomiting</td>
</tr>
<tr>
<td>Cognitive: Confusion, feeling slowed down, difficulty concentrating, difficulty remembering new information</td>
</tr>
<tr>
<td>Emotional: Irritability, sadness, feeling more emotional, nervousness, anxiety</td>
</tr>
<tr>
<td>Sleep: Sleeping more or less than usual, trouble falling asleep</td>
</tr>
</tbody>
</table>

**Action #8: Seek diagnosis by a medical professional with concussion training or experience.** When possible, athletes removed from play due to a suspected concussion should be evaluated by licensed medical professionals with experience diagnosing and treating concussions. Some state laws allow any licensed health care provider to conduct concussion assessments. However, using a provider with less experience or training could lead to misdiagnosis or put the athlete at risk of further injury by prematurely returning him or her to activity.

The lack of a reliable and objective test for concussion diagnosis makes an experienced health care provider invaluable. Brain images of concussion sufferers usually appear normal using CT scans or MRIs. To diagnose a concussion, a health care provider evaluates an athlete’s reported signs and symptoms. Given the subjective nature of this evaluation, proper concussion treatment is often dependent upon a health care provider’s concussion experience and training.

**Action #9: Create a physical and cognitive recovery plan for to students suffering from a concussion.** Athletes who have sustained a concussion may require both physical and cognitive recovery. Returning to school and play before symptoms resolve can prolong recovery and increase the risk of potentially serious repeat concussions from less force.

A plan for physical and cognitive recovery is the accepted recovery standard. To promote a coordinated and effective response to concussions, some schools create concussion management teams composed of medical professionals, coaches, teachers, and parents. The team considers each athlete’s injury and develops an individual recovery plan. To ensure athletes receive proper physical and cognitive rest, consider these recommendations.
**Physical Recovery**

A gradual return-to-play plan should be used for concussed athletes, with slow resumption of normal activity following successive stages of activity. The plan should be guided by a licensed medical professional, ideally one with experience diagnosing and treating concussions.

At each successive stage, athletes are evaluated by the medical professional to ensure they can tolerate increased activity. The athlete may require a return to a previous stage with failure to tolerate increased activity. Commonly, return-to-play plans include these six steps:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Objective</th>
<th>Level of Physical Activity</th>
<th>Recommended Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rest and recovery</td>
<td>None</td>
<td>Basic daily living activities</td>
</tr>
<tr>
<td>2</td>
<td>Assess tolerance of activity</td>
<td>Light</td>
<td>Non-impact aerobic activity</td>
</tr>
<tr>
<td>3</td>
<td>Begin assimilation into team</td>
<td>Moderate</td>
<td>Non-contact sport-specific drills</td>
</tr>
<tr>
<td>4</td>
<td>Ensure tolerance</td>
<td>Training drills</td>
<td>Non-contact activity at full speed, aerobic and weight lifting</td>
</tr>
<tr>
<td>5</td>
<td>Assess functional skills</td>
<td>Resume practice</td>
<td>Full contact practice with team</td>
</tr>
<tr>
<td>6</td>
<td>Resume activity</td>
<td>Return to play</td>
<td>Regular game competition</td>
</tr>
</tbody>
</table>

**Cognitive Recovery**

There is no consensus on how much cognitive recovery is necessary or effective after a concussion. The American Academy of Pediatrics (AAP) recommends a unique “return-to-learn” plan for each athlete. Balancing an athlete's physical recovery with his or her academic performance is often difficult. Missing school while symptoms resolve can negatively affect academic progress. The AAP recommends the following adjustments, as needed, to promote cognitive rest.

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Recommended Adjustments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>Breaks or rest in a quiet area, such as a nurse’s office</td>
</tr>
<tr>
<td>Sensitivity to light</td>
<td>Reduce exposure to bright objects, such as computers, smart phones, or TVs</td>
</tr>
<tr>
<td>Sensitivity to noise</td>
<td>Limit or avoid band or PE class, lunch rooms, or other noisy environments</td>
</tr>
<tr>
<td>Difficulty concentrating or remembering</td>
<td>Extra time to complete exams or rescheduling of exams, reduced classwork and homework</td>
</tr>
<tr>
<td>Sleep disturbances</td>
<td>Late start or shortened school day to catch up on sleep</td>
</tr>
</tbody>
</table>

**Action #10: Receive written clearance for return-to-play by a licensed medical professional.** Only a licensed medical professional should clear an athlete for return to school and play. Require the clearing medical professional, the athlete’s parent, and the athlete to sign a return-to-activity form. While some schools accept return-to-play decisions from a medical professional chosen by the athlete’s parents, this practice can be problematic. Requiring a medical professional selected or employed by the institution to make return-to-play decisions prevents athletes from shopping for professionals who will allow them to play and potential conflicts between the school and the athlete’s expert.
**Action #11: Reserve the right to permanently retire athletes from sports.** The consequences of multiple concussions and sub-concussive head impacts are not fully known or understood. However, more studies report unfavorable changes in cognitive function than do not. According to the IOM report, athletes with a history of concussion may have severe subsequent concussions and take longer to recover. As a result, a school should reserve the right, in its concussion policy, to permanently retire athletes from sports. For example, permanent retirement may be appropriate if an athlete:

- Has a history of prior concussions
- Shows evidence that smaller forces are sufficient to cause a concussion
- Suffers post-concussion symptoms lasting more than three months
- Experiences multiple head or neck injuries that increase the risk of future concussions

The decision to retire an athlete should be made upon recommendation by a physician and in consultation with the school’s attorney, the athlete’s parents, and the athlete.

**Action #12: Document the treatment of head injuries.** In many of UE’s K-12 athletics claims, documentation of the athlete’s concussion treatment was poor. This made it difficult to determine whether the school’s treatment was appropriate. Schools must be able to prove they provided care to athletes who sustained concussions.

Electronic documentation makes it easier for medical providers to access player health information when they need it, such as at a competition or practice. Medical providers can also input information remotely. Many vendors back up treatment records on remote servers, ensuring record retention. An electronic system facilitates information sharing between trainers, doctors, and other medical professionals. In addition, schools should:

- Clearly document compliance with the school’s written concussion management policies
- Carefully document treatment of head injuries that cause an athlete to miss practice or competition
- Consult with the school’s attorney to determine the length of time to retain treatment records

**Looking Ahead**

These actions can help schools protect students from concussions and TBI. Establishing a sound foundation for responding to athlete concussions will promote athlete health. As medical research, recommended practices, and the law on concussions continue to evolve, schools should annually review and revise their concussion management plan to promote student safety. Invite stakeholders, such as medical professionals, legal counsel, and athletic administrators to participate. Seek input from students and parents to achieve buy-in for the school’s plan and encourage safe behavior.

**Acknowledgment**

This Public School News, “Managing the Risks of Athlete Concussions,” was written by Joe Vossen, JD, associate risk management counsel for UE.