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Guidelines to Accommodate Concussed Scholastic Student-athletes

By Phil Hossler, ATC

Preface

Scholastic student-athletes have many and various adults that affect their daily activities. When a student is also an athlete with a concussion, it is important that both athletic and academic personnel make coordinated decisions in order to obtain the best results for the student-athlete.

In high schools across the nation, thousands of boys and girls are filling the role of both student and athlete. Health care professionals are learning more about how to recognize and manage the physical demands and restrictions associated with concussions. However, when the athlete returns to the role of student, close scrutiny, care and management does not always accompany them. Academic accommodations need to become part of the overall management plan for student-athletes in order to ensure their health as well as to promote educational growth.

Concussion is the most common brain injury in sports. A concussion may be defined as a mild traumatic brain injury induced by mechanical forces that immediately disrupt the normal functioning of the brain. The Center for Disease Control and Prevention estimates each year there are over 1.5 to 3 million concussions in the United States.

Research conducted at the University of Pittsburgh has demonstrated that a history of concussion can cause long-term memory loss and other problems. According to Dr. Micky Collins, “the study indicated for the first time in the high school athletic population that prior concussions may indeed lower the threshold for subsequent concussion injuries and increase symptom severity in even seemingly mild subsequent concussions”. UPMC researchers found that athletes with three or more concussions were nine times more likely to suffer more severe concussion symptoms (e.g., loss of consciousness and memory) than players with no prior history of concussion. (1)

The benefits scholastic athletes derive from athletic participation are wide and deep. Athletes are motivated, dedicated and goal orientated as sport participants and often these same characteristics carry over into their academic lives as well. When an athlete has a concussion and their activity is restricted during recovery, these same characteristics can lead to frustration, denial, depression and often impact their personality, social interaction and scholastic performance.



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It is important to remember that although the majority of concussions are relatively short lived and produce no lingering effects there are some concussions that persist with long-term even devastating disabilities. Every concussion is a brain injury and injuries need evaluation, adaptations in routine and time to heal. This is especially true in adolescents whose brain tissue has increased vulnerability when compared to that of an adult. (2)

Every concussion is a brain injury and there is no such thing as a mild brain injury.

The need for a concussed athlete to have physical rest has been known for years. A necessary adjunct to the physical curtailment or alteration of intensity is that of cognitive rest. (3) Student-athletes must be evaluated and monitored in their school work as well as their physical recovery. Educators are in a very advantageous position to notice changes that can lead to early intervention. Teachers are often the first to notice subtle changes in the student's ability to concentrate, remember new information and interact with classmates.

Tests taken while the student still has symptoms of a concussion may affect academic achievement levels. For example a student who has headaches may have trouble concentrating in class. Fatigue during and after school may make it harder for the student to complete assignments or pay attention in class. Problems with short term memory can make learning new information difficult in classes such as history, science and math which require factual recall. Academic as well as physical stress may actually prolong recovery.

If the student's grade point average drops below minimum school or state standards, the student may become ineligible for athletic participation the next season. If the symptoms persist from the concussion while taking end-of-the-year exams or college entrance exams, resulting low scores may be devastating.

There are currently two major procedures by which schools may meet specific needs of those students with either short-term or long-term learning disabilities: either the construction of a 504 Plan or an Individualized Education Program (IEP).

WHAT IS A 504 PLAN?

A 504 Plan is written when a student has a disability that affects their performance in any manner. Tyler and Wilkerson (2002) wrote a very concise and informative brochure entitled "Section 504 Plan Checklist" (4) in which they state "section 504 is a civil rights act. It protects the civil and constitutional rights of persons with disabilities. Section 504 of the



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Rehabilitation Act of 1973 states that schools receiving federal financial assistance may not discriminate against individuals with disabilities.”

They go on to explain that “a person may be considered disabled as defined by Section 504, if the individual

- Has a mental.....impairment which substantially limits one or more major life activities (such as)learning....
- Has a record of such an impairment or
- Is regarded as having such impairment.”

Section 504 is a federal law, so once a student is deemed suited for a 504 Plan, the school must comply with and apply all aspects of the plan. When school officials create a 504 Plan, there must be input from a variety of professionals such as physicians, school nurse, guidance personnel, teachers and administration. In addition, the student-athlete’s parents must also agree to the implementation of the 504 Plan. The creation of a 504 Plan can be tedious, time consuming and is often excessive given the length of the majority of concussions. In the event a student-athlete suffers from Post Concussive Syndrome which can produce life-altering complications and may persist for an extended period of time, the school will need to implement a 504 Plan to assist the student.

WHAT ARE SOME TYPICAL ACCOMADATIONS MADE IN A 504 PLAN?

The 504 Plan is a tool for staff and parents to identify challenges and describe accommodations that will be provided in order assist the student accomplish identified behavioral and academic goals. These accommodations may include changes in the environment, curriculum, methodology of teaching, organization, behavior and presentational strategies.

These accommodations may be included in a school’s plan for concussed athletes even in the absence of a formalized 504 Plan. Sample accommodations listed in the Tyler and Wilkerson brochure include:

Processing Accommodations

- Increased time to complete assignments and tests
- Breakdown complex directions into steps
- Decreased length of assignments

Memory Deficits Accommodations

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



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Attention Accommodations

- Visual prompts
- Frequent breaks
- Preferential seating

Organizational Skills Accommodations

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

THE CREATION OF AN IEP

An alternative to a 504 Plan is an Individualized Education Program (IEP). Granting a child a 504 plan may be less involved than referring a child to a child study team to be evaluated, classified, possibly placed in non-general education classes and provided with an IEP. An IEP is intended for students who are classified and/or deemed to need special education instruction.

Creating a Guideline of Accommodations

The idea of providing school faculty with a list of accommodations that may be utilized once the student has been identified as having a concussion is perhaps the most productive and easily accomplished alternative to the more formal 504 Plan and IEP Program.

Since many teenagers do not always communicate readily with their parents and they may be unaware of the signs and symptoms of a concussion, teachers may be the first to notice a change in the student's personality, work attitude or simply wonder what is wrong with the student.

Frequently Observed Indications of a Concussion

Everyone associated with the concussed student-athlete must be aware of signs and symptoms indicating a possible concussion. The student-athlete's friends, parents and coaches should be familiar with the signs and symptoms Teachers typically may be the first to notice changes in classroom behaviors such as those listed below: (5)

- 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 routine assignments
- Disproportional reaction to situations



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- Repeating themselves
- Sensitivity to light and/or noise

Consider the following scenario:

John is usually a good student who is typically interactive and engaged during class. For the last three days since his team lost the big game, he has been acting lethargic and withdrawn. When questioned, John states he has a headache and is very tired.

Traditionally, a teacher may have reprimanded John or even called home to see if there is something going on outside of school. Use of the organizational system such as the following may prove to be more effective in assisting John personally and academically rather than just assuming he is “a typical teenager”.

A much more advantageous system is shown in the flowchart:

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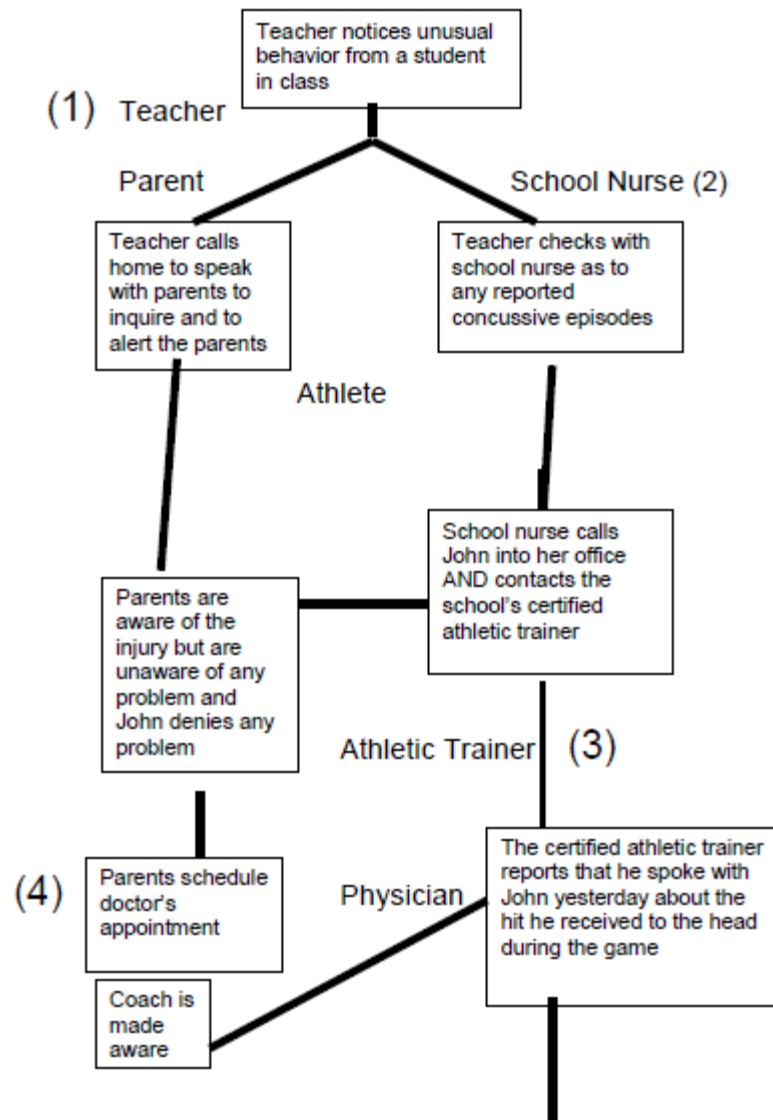
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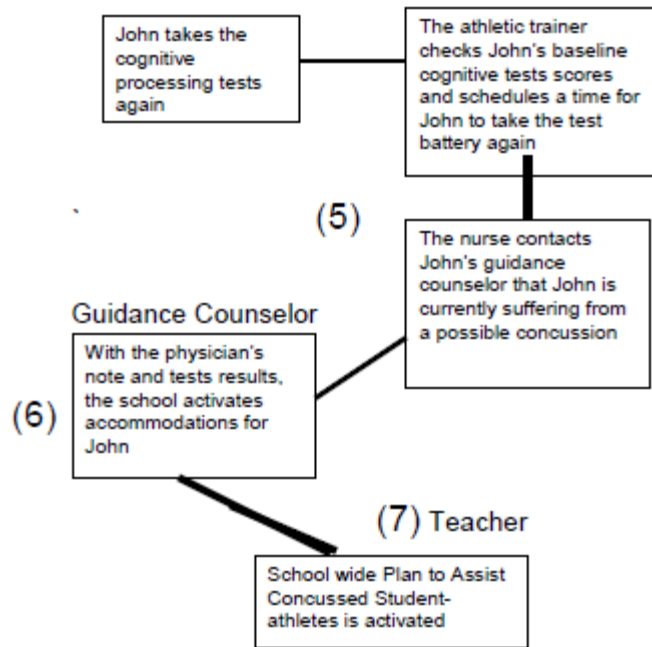
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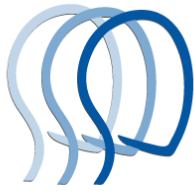
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A quick view of this flowchart shows several immediate organizational and administrative advantages:

- (1) Teacher(s) when noticing an abrupt change in John spoke with the school nurse. After mutually deciding on a course of action, either the teacher or nurse contacted the parents.
- (2) The nurse spoke with both the student and the certified athletic trainer
- (3) The certified athletic trainer informs the school nurse that John exhibited signs of a concussion in a game two days prior and that he spoke with John's parents at the game and has been seeing John after school each day. While the parents are aware of the situation, John reassured them he was fine
- (4) After speaking to the school nurse, the certified athletic trainer speaks to John's mother and encouraged her to schedule a physician appointment. After the initial 48 hours, John is re-administered the cognitive test and his score is compared with his baseline score. The certified athletic trainer shares this information with the parents, nurse, coach and examining physician
- (5) The school nurse alerts all of John's teachers (some schools may utilize the guidance department for this notification) as to the situation and the anticipated duration according to the physician's examination
- (6) The school has already adopted short term accommodations to assist concussed student-athletes through this difficult time
- (7) All of John's teachers possess a copy of the Guidelines to Assist Concussed Scholastic Student-athletes and they activate the portions of the plan that meets John's needs in their class



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The principles of sound and consistent monitoring are evident in this plan. The process starts with the teacher and returns to the teacher after all key personnel are involved in the formation of the decision. The cycle of involvement may start in other places, for example, it may be the parent who calls the athletic trainer, coach or school nurse. It may be the athletic trainer who contacts the school nurse initially.

Regardless of the starting point, the plan touches base with all necessary personnel and includes them throughout the entire process. The involvement of school nurse and athletic trainer will ensure monitoring of John's health while involvement by teachers and guidance will ensure monitoring of John's academic progress. The athletic trainer should communicate with John's coach and parents often. This will ensure that the parents are aware of the entire process even if John did not share any information with them at the onset of symptoms.

Thankfully the majority of concussions do not produce long-term effects. However, even in the short-term this may produce anxiety for the student and parent(s) as well as an event which may have social and academic consequences.

Sports medicine professionals have worked toward recognizing and treating concussed athletes for many years and now must enlist their academic colleagues to join the team as well. Concussed student-athletes fall between the classified or long-term disabled students and the normal, non-affected group. Their short-term, yet nevertheless, disabling condition needs to be monitored by caregivers and schools. Involvement by physicians and neuropsychologists cannot be overemphasized; especially if they are skilled in neurocognitive testing and interpreting.

Sample Accommodations to Assist Concussed Scholastic Student-athletes

The following are sample accommodations that a school might utilize to assist concussed student-athletes. Different schools as well as different classes within the same school will alter this list to best suit the school's overall administration philosophy and specific class needs.

Each teacher makes alterations as progress and healing occurs; in addition, each classroom may use different aspects at different times.

Teachers are prepared to assist the student.....

- Pay attention and concentrate
- Plan ahead and work to achieve good organization
- Verbalize, repeat, recall recent information
- Manage time effectively



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Teaching Strategies to Consider.....

- One-on-one instruction
- Extra class time
- If necessary, consider an abbreviated day
- Extended time to complete assignments
- Extended time to take tests
- Allow time to visit school nurse for treatment of headaches as needed
- After class time to reinforce and clarify
- Rests breaks during the day as needed
- Classroom buddy system
- Provide written instructions for homework
- Fax homework assignments to the parents as well
- Utilize small group instruction
- Repeat and present new information slowly
- Take the time to show the entire class what good homework for this assignment would look like
- Consider allowing use of a tape recorder
- Ensure that seating avoids outside distractions
- Be certain to monitor and share with nurse, guidance personnel and parents progress and difficulties
- Utilize guidance personnel to share progress with all of the student's teachers
- Communicate with parents about in-school progress and/or difficulties as well the quality of homework brought into class

Summary

Teachers should become familiar with recognizing signs and symptoms of concussion. Professionals in academic arenas are encouraged to become partners in the care provided to student-athletes suffering from concussion. Accommodations made for the academic portion of a STUDENT-athlete's life are just as important as the adjustments made for the physical portion of the student-ATHLETE'S participation.

Everyone involved with the student, both academically and athletically, has a role to fulfill. Teachers are classroom "coaches" when it comes to developing an appropriate game plan to ensure success for the student. School nurses and guidance personnel are key support positions to monitor the concussed student's success. Parents, certified athletic trainers and coaches are critical when it comes to monitoring the athlete's health and attitude during the healing process.

New technology, better recognition skills and computer software programs to determine both pre- and post- neurocognitive skills have advanced the care given to athletes. Only through a comprehensive program which



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recognizes both the academic and athletic portions of the student's scholastic experience can total health care be accomplished.

Resources

1 Iverson G, Gaetz M, Collins MW, Lovell MR. Cumulative effects of concussion in amateur athletes. Archives of Clinical Neuropsychology 2002;17(8);770

2 Collins MW, Iverson GL, Lovell MR, McKeag DB, Norwig J, Maroon J. On-field predictors of neuropsychological and symptom deficit following sports-related concussion. Clinical Journal of Sport Medicine, In Press.

3 Majurske C, Minkiak J, Collins M. et al. Data under review

4 Tyler J, Wilkerson L Section 504 Plan Checklist for a student with a brain injury. Wake Forest, NC. Lash and Associates Publishing / Training.Inc.

5. Hossler P., Savage R. (2006) Getting A-Head of Concussions- educating the student-athlete's neighborhood. Wake Forest, NC. Lash and Associates Publishing/Training.Inc.

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