



BENTONVILLE PUBLIC SCHOOLS CONCUSSION GUIDELINES

Introduction

The Centers for Disease Control (CDC) estimates that there are approximately 300,000 cases of mild traumatic brain injury (MTBI) or concussions annually in the United States as the result of participation in sports. The Sports Concussion Institute estimates that 10 percent of athletes in contact sports suffer a concussion during a season. A 2006 report estimated that there were 92,000 cases of concussions in American High School sports annually, and that these rates seem to be increasing. Also of concern is the risk of repeated concussions and second impact syndrome to athletes. These two problems can have long lasting, and even terminal effects, on the individual. In order to have a standard method of managing concussions for Bentonville student-athletes, the following guidelines are intended to serve as a written protocol for concussion management.

Definitions

Concussion or Mild Traumatic Brain Injury (MTBI) - A concussion or MTBI is the common result of a blow to the head or body which causes the brain to move rapidly within the skull. This injury causes brain function to change which results in an altered mental state (either temporary or prolonged). Physiologic and/or anatomic disruptions of connections between some nerve cells in the brain occur. Concussions can have serious and long-term health effects, even from a mild bump on the head. Symptoms include, but are not limited to, brief loss of consciousness, headache, amnesia, nausea, dizziness, confusion, blurred vision, ringing in the ears, loss of balance, moodiness, poor concentration or mentally slow, lethargy, photosensitivity, sensitivity to noise, and a change in sleeping patterns. These symptoms may be temporary or long lasting.

Second Impact Syndrome – Second impact syndrome (SIS) refers to catastrophic events which may occur when a second concussion occurs while the athlete is still symptomatic and healing from a previous concussion. The second injury may occur within days or weeks following the first injury. Loss of consciousness is not required. The second impact is more likely to cause brain swelling with other widespread damage to the brain. This can be fatal. **Most often SIS occurs when an athlete returns to activity without being symptom free from the previous concussion.**

Prevention Strategies

1. For sports that require headgear, a coach or appropriate designate should check that all headgear is NOCSAE (National Operating Committee on Standards for Athletic Equipment) certified, that the headgear fits the individual and the air bladders work and are appropriately filled. Padding should be checked to make sure they are in proper working condition.
2. Mouth guards should fit and be used at all times.
3. Neuro-psychology (ImPACT) testing on students that participate in contact sports prior to season, in order to form a baseline.
4. Assess safety of playing surfaces/fields, making sure that potential hazards are remedied or removed (ie. cracks in flooring that an athlete can trip on, defective fences around fields that an athlete can run into)

Evaluation for Concussion/MTBI

1. At time of injury, administer one of these assessment tests:
 - a. Sports Concussion Assessment Tool (Care Sport, King Devick, SCAT 3, SWAY)
 - b. Graded Symptom Checklist (GSC)
 - c. Sideline Functional & Visual Assessments
 - d. On-field Cognitive Testing
2. Observe athlete 5 to 10 minutes and re-evaluate.
3. **Student-athlete does not return to a game or practice on that day, regardless of resolution of signs/symptoms.**
4. Doctor/Hospital Referral if necessary
5. Home Instructions
6. Return to Play Guidelines
7. First neuro-cognitive (SCAT 3) retest 48 hours after injury. Other tests may be administered as needed throughout the evaluation period (Biodex BioSway Testing).
8. **Note - If in doubt, student-athlete is referred to doctor/hospital and does not return to practice or competition.**

Concussion Management

1. Academic modifications
 - a. Notify coaches and class professors that the student-athlete has MTBI
 - b. Notify teachers of post-concussion symptoms
 - c. Ask teachers to contact athletic trainer with concerns or observations of abnormal student behavior
 - d. Student-athlete may need special accommodations such as limited computer work, reading activities, testing, assistance to class, etc. until symptoms subside
 - e. Student-athlete may only be able to attend school for half days or may need daily rest periods until symptoms subside

Return to Play Guidelines

1. Graduated return to play protocol
2. Component scores of ImpACT, King Devick and or SCAT 3 testing, balance testing (SWAY) are normal and within normal limits of baseline.
3. Athletic Trainer and/or Physician clearance for return to play

Table 1 Rehabilitation stage	Functional exercise at each stage of rehabilitation	Objective of each stage
1. No activity	Complete physical and cognitive rest	Recovery
2. Light aerobic exercise	Walking, swimming or stationary cycling keeping intensity <70% maximum predicted heart rate	Increase heart rate
3. Sport-specific exercise	Skating drills in ice hockey, running drills in soccer. No head impact activities	Add movement
4. Non-contact training drills	Progression to more complex training drills, eg passing drills in football and ice hockey	Exercise, coordination, and cognitive load
May start progressive resistance training		
5. Full contact practice	Following medical clearance participate in normal training activities	Restore confidence and assess functional skills by coaching staff
6. Return to play	Normal Play	

Bentonville Protocol

Day 1 – Bike or Elliptical (15 min. @ level 12)

Day 2 – Bike or Elliptical (15 min. @ level 15)

Day 3 – Bike or Elliptical (20 min. @ level 18)

Day 4 – Bike or Elliptical (20 min. @ level 20)

Day 5 – Bike or Elliptical (25 min. @ level 20)