



SPORTS-RELATED CONCUSSION PROTOCOL SECONDARY ATHLETICS

Management of sports-related concussion is evolving. In recent years, there has been a significant amount of research into sports-related concussion in secondary athletes. Natrona County School District (NCSD) has established this protocol to provide education about concussion for athletic department staff and other school personnel. This protocol outlines procedures for staff to follow in managing head injuries, and outlines return to play processes after a concussion.

NCSD seeks to provide a safe return to activity for all athletes after injury, particularly after a concussion. In order to effectively and consistently manage these injuries, procedures have been developed to aid in insuring that concussed athletes are identified, treated and referred appropriately, receive appropriate follow-up medical care during the school day, including academic assistance, and are fully recovered prior to returning to activity.

In addition to recent research, two (2) primary documents were consulted in developing this protocol. The “Summary and Agreement Statement of the 2nd International Conference on Concussion in Sport, Prague 2004”¹ (referred to in this document as the Prague Statement), and the “National Athletic Trainers’ Association Position Statement: Management of Sport-Related Concussion”² (referred to in this document as the NATA Statement). Furthermore, the protocol is in compliance with Senate Act - SEA0097 (SF0038) signed by Governor Matt Mead on March 10, 2011.

The NCSD district personnel will review this protocol on a yearly basis. Any changes or modifications will be reviewed and given to athletic department staff and appropriate school personnel in writing.

All athletic department staff will receive yearly updates in which procedures for managing sports-related concussion are presented.

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I. Recognition of Concussion

A. Common signs and symptoms of sports-related concussion

1. Signs (observed by others):

- a. Athlete appears dazed or stunned
- b. Confusion (about assignment, plays, etc.)
- c. Forgets plays
- d. Unsure about game, score, opponent
- e. Moves clumsily (altered coordination)
- f. Balance problems
- g. Personality change
- h. Responds slowly to questions
- i. Forgets events prior to hit
- j. Forgets events after the hit
- k. Loss of consciousness (any duration)

2. Symptoms (reported by athlete):

- a. Headache
- b. Fatigue
- c. Nausea or vomiting
- d. Double vision, blurry vision
- e. Sensitive to light or noise
- f. Feels sluggish
- g. Feels “foggy”
- h. Problems concentrating
- i. Problems remembering

3. These signs and symptoms are indicative of probable concussion. Other causes for symptoms should also be considered.

B. Cognitive impairment (altered or diminished cognitive function)

1. General cognitive status can be determined by simple sideline cognitive testing.

- a. The ATC may utilize SCAT (Sports Concussion Assessment Tool)³, SAC, sideline ImPACT, or other standard tool for sideline cognitive testing. High School level only.
- b. Coaches should use sideline cards.

II. ImPACT Neuropsychological Testing Requirements (high school level only)

1. ImPACT (Immediate Post-Concussion Assessment and Cognitive Testing) is a research-based software tool utilized to evaluate recovery after concussion. It was developed at the University of Pittsburgh Medical Center (UPMC). ImPACT evaluates multiple aspects of neurocognitive function, including memory, attention, brain processing speed, reaction time, and post-concussion symptoms.

- a. Neuropsychological testing is utilized to help determine recovery after concussion.

2. All athletes participating in contact/collision sports at NCSD are required to take a baseline ImPACT test prior to participation in sports in NCSD.
 - a. All contact/collision athletes will view a video presentation entitled: “Heads Up: Concussion in High School Sports,” prior to taking the baseline test.
 - b. Contact/collision may include but are not limited to football, volleyball, skiing, wrestling, cheerleading, basketball, soccer, diving, and pole vaulting.

III. Management and Referral Guidelines for All Staff

A. Suggested Guidelines for Management of Sports-Related Concussion⁴

1. Any athlete with a witnessed loss of consciousness (LOC) of any duration should be evaluated and proper medical referrals made; which may include spine boarding and or transportation via emergency vehicle.
2. Any athlete who has symptoms of a concussion, and who is not stable (i.e., condition is changing or deteriorating), is to be transported immediately to the nearest emergency department. This may be via emergency vehicle.
3. An athlete who exhibits any of the following symptoms should be transported immediately to the nearest emergency department, via emergency vehicle.
 - a. deterioration of neurological function
 - b. decreasing level of consciousness
 - c. decrease or irregularity in respirations
 - d. decrease or irregularity in pulse
 - e. unequal, dilated, or unreactive pupils
 - f. any signs or symptoms of associated injuries, spine or skull fracture, or bleeding
 - g. mental status changes: lethargy, difficulty maintaining arousal, confusion or agitation
 - h. seizure activity
 - i. cranial nerve deficits
4. An athlete who is symptomatic but stable, may be transported by his or her parents. The parents should be advised to contact the athlete’s primary care physician, or seek care at the nearest emergency department, on the day of the injury.
 - a. ALWAYS give parents the option of emergency transportation, even if you do not feel it is necessary.

IV. Procedures for the Certified Athletic Trainer (ATC)

- A. The ATC will assess the injury, or provide guidance to the coach if unable to personally attend to the athlete.
 1. Immediate referral to the athlete’s primary care physician or to the hospital will be made when medically appropriate (see section III).

2. The ATC will perform serial assessments following recommendations in the NATA Statement, and utilize the SCAT (Sport Concussion Assessment Tool), as recommended by the Prague Statement, or sideline ImPACT, if available. The ATC will notify the athlete's parents and give written and verbal home and follow-up care instructions.
- B. The ATC will notify the school personnel of the injury, so appropriate follow – up care can be initiated when deemed necessary.
1. The ATC will continue to provide coordinated care with the school personnel for the duration of the injury.
 2. The ATC will communicate with the athlete's guidance counselor regarding the athlete's neurocognitive and recovery status, if needed.
- C. The ATC is responsible for administering post-concussion ImPACT testing.
1. The initial post-concussion test will be administered within 48-72 hours post-injury, whenever possible.
 - a. Repeat post-concussion tests will be given at appropriate intervals, dependent upon clinical presentation.
 2. The ATC will review post-concussion test data with the athlete and the athlete's parent.
 3. The ATC will forward testing results to the athlete's treating physician, with parental permission and a signed release of information form.
 4. The ATC or the athlete's parent may request that a neuropsychological consultant review the test data. The athlete's parents will be responsible for charges associated with the consultation.
 5. The ATC will monitor the athlete, and keep the school personnel informed of the individual's symptomatology and neurocognitive status, for the purposes of developing or modifying an appropriate health care plan for the student-athlete.
 6. The ATC is responsible for monitoring recovery & coordinating the appropriate return to play activity progression.
 7. The ATC will maintain appropriate documentation regarding assessment and management of the injury.

V. Guidelines and procedures for coaches:

RECOGNIZE, REMOVE, REFER

A. Recognize concussion

1. All coaches should become familiar with the signs and symptoms of concussion that are described in section I.

2. Very basic cognitive testing should be performed to determine cognitive deficits.
 - a. Refer to sideline cards

B. **Remove** from activity

1. If a coach suspects the athlete has sustained a concussion, the athlete should be removed from activity until evaluated medically.

Any athlete who exhibits signs or symptoms of a concussion should be removed immediately, assessed, and should not be allowed to return to activity that day.

C. **Refer** the athlete for medical evaluation

1. Coaches should report all head injuries to a NCSA Certified Athletic Trainer (ATC), administrator, or nurse, as soon as possible, for medical assessment and management, and for coordination of home instructions and follow-up care (Appendix A). If the nurse is not notified directly ATC or administrator will inform the school nurse of the incident.
 - a. NCSA Certified Athletic Trainers (ATC) can be reached at Kelly Walsh High School 970-381-3472 or Natrona County High School 315-4955.
 - b. The coach (ATC if applicable) will be responsible for contacting the athlete's parents and providing follow-up instructions (Appendix A).
2. Coaches should seek assistance from the host site medical personnel if at an away contest.
3. If a NCSA ATC is unavailable, or the athlete is injured at an away event, the coach is responsible for caring for and notifying the athlete's parents of the injury.
 - a. Contact the parents to inform them of the injury and make arrangements for them to pick the athlete up at school.
 - b. Contact school personnel (Administrator, Athletic Director (AD), or Athletic Facilitator) to inform them of the injury.
 - c. Contact the ATC (if appropriate) at the above number, with the athlete's name and home phone number, so that follow-up can be initiated. Additional copies are available from the ATC.
 - d. Remind the athlete to report directly to the ATC (if appropriate) on the day he or she returns to school after the injury.
4. In the event that an athlete's parents cannot be reached, and the athlete is able to be sent home (rather than directly to MD):
 - a. The Coach (ATC if applicable) should ensure that the athlete will be with a responsible individual, who is capable of monitoring the athlete and understanding the home care instructions (Appendix A0, before allowing the athlete to go home.
 - b. The Coach (ATC if applicable) should continue efforts to reach the parent.
 - c. If there is any question about the status of the athlete, or if the athlete is not able to be monitored appropriately, the athlete should be referred to the emergency department for evaluation. A coach (ATC if applicable) should accompany the athlete and remain with the athlete until the parents arrive.
 - d. Athletes with suspected head injuries should not be permitted to drive home.

VI. FOLLOW-UP CARE OF THE ATHLETE DURING THE SCHOOL DAY

A. Responsibilities of the School Nurse after notification of student's concussion

1. The athlete will be instructed to report to the school nurse upon his or her return to school. The school nurse will:
 - a. Re-evaluate the athlete utilizing a graded symptom checklist.
 - b. Provide an individualized health care plan based on both the athlete's current condition, and initial injury information provided by the administrator, AD, ATC or parent.
2. The nurse will notify the student's guidance counselor and teachers of the injury.
3. The nurse will notify the student's teachers immediately that the athlete is restricted from all physical activity until further notice.
4. If the school nurse receives notification of a student-athlete who has sustained a concussion from someone other than the ATC (athlete's parent, athlete, physician note), the ATC should be notified as soon as possible, so that an appointment for ImPACT testing can be made (**high school level only**).
5. Monitor the athlete on a regular basis during the school day.

B. Responsibilities of the Guidance Counselor

1. Monitor the student closely and recommend appropriate academic accommodations for students who are exhibiting symptoms of post-concussion syndrome.
2. Communicate with school health office on a regular basis, to provide the most effective care for the student.

VII. RETURN TO PLAY (RTP) PROCEDURES AFTER CONCUSSION

A. Returning to participate on the same day of injury

1. An athlete who exhibits signs or symptoms of concussion, or has abnormal cognitive testing, should not be permitted to return to play on the day of the injury. Any athlete who denies symptoms but has abnormal sideline cognitive testing should be held out of activity.
2. "When in doubt, hold them out."

B. Return to play after concussion

1. The athlete must meet all of the following criteria in order to progress to activity:
 - a. Asymptomatic at rest and with exertion (including mental exertion in school) AND:

- b. Within normal range of baseline on post-concussion ImPACT testing. If an athlete hasn't completed ImPACT testing athlete must be asymptomatic for 7 days (**high school level only**) AND:
 - c. Have written clearance from primary care physician or specialist (athlete must be cleared for progression to activity by a physician other than an Emergency Room physician).
2. Once the above criteria are met, the athlete will be progressed back to full activity following a stepwise process, under the supervision of the school nurse (or ATC if applicable).
 3. Progression is individualized, and will be determined on a case by case basis. Factors that may affect the rate of progression include: previous history of concussion, duration and type of symptoms, age of the athlete, and sport/activity in which the athlete participates. An athlete with a prior history of concussion, who has had an extended duration of symptoms, or one who is participating in a collision or contact sport should be progressed more slowly.
 4. Stepwise progression as described in the Prague Statement:
 - a. No activity – do not progress to step 2 until asymptomatic
 - b. Light aerobic exercise – walking, stationary bike
 - c. Sport-specific training (e.g., skating in hockey, running in soccer)
 - d. Non-contact training drills
 - e. Full-contact training after medical clearance
 - f. Game play

If the athlete experiences post-concussion symptoms during any phase, the athlete should drop back to the previous asymptomatic level and resume the progression after 24 hours.

5. The school nurse (or ATC if applicable) and athlete will discuss appropriate activities for the day. The athlete will be given instructions regarding permitted activities.
6. The athlete should see the school nurse (or ATC if applicable) daily for re-assessment and instructions until he or she, has progressed to unrestricted activity.

¹McCroory P, et al. Summary and Agreement Statement of the 2nd International Conference on Concussion in Sport, Prague 2004. *Clin J Sports Med.* 2005; 15(2):48-55.

²Guskiewicz KM, et al. National Athletic Trainers' Association Position Statement: Management of Sport-Related Concussion. *J Athl Train.* 2004;39(3):280-297.

³McCroory P, et al

⁴Guskiewicz KM, et al

APPENDIX A

HEAD INJURY/CONCUSSION NOTIFICATION

Name of Athlete _____ Date of Injury _____ Sport _____

Home Phone _____ Parent/Guardian Name _____

Your son/daughter has sustained a head injury while participating in _____. In some instances, the signs of a concussion do not become obvious until several hours or even days after the injury. Please be especially observant for the following signs and symptoms:

1. Headache (especially one that increases in intensity)*
2. Nausea and vomiting*
3. Difference in pupil size from right to left eye, dilated pupils*
4. Mental confusion/behavior changes
5. Dizziness
6. Memory loss
7. Ringing in the ears
8. Changes in gait or balance
9. Blurry or double vision*
10. Slurred speech*
11. Noticeable changes in the level of consciousness (difficulty awakening, or losing consciousness suddenly)*
12. Seizure activity*
13. Decreased or irregular pulse OR respiration*

*** Seek medical attention at the nearest emergency department**

The best guideline is to note symptoms that worsen, and behaviors that seem to represent a change in your son/daughter. If you have any questions or concerns at all about the symptoms you are observing, contact your family physician for instructions, or seek medical attention at the closest emergency department. Otherwise, you can follow the instructions outlined below:

IT is OK to:

- Use acetaminophen (Tylenol) for headaches
- Eat a light diet
- Go to sleep
- Use ice pack on head & neck as needed for comfort
- Rest (no strenuous activity or sports)

There is NO need to:

- Check eyes with a flashlight
- Wake up every hour
- Test reflexes
- Stay in bed

Do NOT:

- Drink alcohol
- Drive while symptomatic
- Exercise or lift weights
- Take ibuprofen, aspirin, naproxen or other non-steroidal anti-inflammatory medications

Please remind your child to check in with the School Nurse prior to going to class, on the first day he/she returns to school. Your child should also follow up with the Certified Athletic Trainer (ATC) (if available) after school.

Recommendations provided to: _____ Phone #: _____

Recommendations provided by: _____ Phone #: _____

Date: _____

Time: _____