Concussion – The Basics

This document is to provide our athletes, parents, coaches, and support staff basic information regarding concussion and a defined set of recommendations for good management. The purpose is to supplement concussion management protocols that have been established by the schools of SD 51.

1. Definition

'Concussion is a brain injury and is defined as a complex pathophysiological process affecting the brain, induced by biomechanical forces.' [**1]**

2. Symptoms (range of symptoms may vary from a single symptom to all symptoms [2-6]

- ***Physical***
  - Headache, confusion, disorientation, staring, appears dazed and / or stunned, light sensitivity, blurred vision, double vision, nausea, dizziness, ringing in the ears, balance problems, noise sensitivity, incoordination, slurred speech, neck pain, loss of consciousness.
- ***Cognitive***
  - Concentration and/or memory difficulty, feeling mentally 'foggy, groggy, and/or hazy', forgetfulness, slowed processing of basic information and/or answering questions.
- ***Emotional***
  - Sadness, nervousness, unusually angry and/or irritable.
- ***Sleep / Energy***
  - Mental fatigue, drowsiness, sleeping too much or too little, difficulty initiating and/or maintaining sleep.

3. Recommendations for Parents

- ***Tips for Restful Sleep***
  - Encourage nighttime sleep and morning wake-up on a regular schedule.
  - Limit morning and afternoon naps.
  - A warm bath or shower one hour before bedtime and stretching and/or deep breathing exercises at bedtime may be helpful.
  - Reduce exposure to light from either inside or outside the bedroom –including alarm clocks, cable boxes, and/or electronics devices.
  - Refrain from watching TV or the use of electronics, including your phone in the bedroom.
- ***Fluids and Diet***
  - Adequate hydration is essential; limit caffeine intake, especially in the afternoons.
  - Avoid all 'energy drinks', eat healthy meals and avoid sugars, refined or processed foods.
  - Eat breakfast regularly and healthy snacks frequently throughout the day.
- ***Be a Partner in Your Child's Recovery***
  - Communicate frequently with your child's school staff (counselor, nurse, teacher's) to ensure that your child has the necessary academic adjustments during recovery.
  - Encourage compliance with medical recommendations –including activity modifications and follow-up visits with their health care provider.
  - Encourage your child to avoid physical activity until medical cleared by their health care provider.

4. School Adjustments (based on classification of 'Symptoms' from Section #2 above) [6]

- ***Physical***
  - Remove from PE, physical recess and/or dance classes.
  - Permit the use of sunglasses –while indoors and outdoors.
  - Encourage use of a quiet room for lunch and during recess.
  - Encourage 'quiet passing' in halls.
- ***Cognitive***
  - Reduce academic workload (classroom and homework).
  - Avoid repetition of work with focus on quality not quantity.
  - Adjust 'due dates' and facilitate 'extra time' for assignments.
  - Provide and explain written instructions for assignments.
  - Permit student to 'audit' classwork as needed.
  - Postpone large test/projects.
  - Adjust testing environment (e.g., quiet testing, one-on-one testing).
- ***Emotional***
  - Empower student to leave classroom as needed using a 'signal' to inform teacher.
  - Educate staff regarding the influence of mental fatigue on 'emotional meltdowns'.
  - Encourage student to visit with supportive adult (counselor, nurse, or advisor).

- Pay attention to symptoms of depression and anxiety related to social isolation and concern over 'catch-up work' and/or deteriorating grades.

- ***Sleep / Energy***
  - Allow for frequent rest breaks as needed –in classroom (e.g., 'brain rest' breaks = head on desk; eyes closed for 5 to 10 minutes).
  - Require scheduled 15 to 20 minute breaks in a quiet space during the mid-morning, mid-afternoon and as needed at other times during the 'school day'.
  - Permit student either to start school later in the day or to leave school early, if needed.
  - Interchange 'mental challenges' with 'mental rest'.

5. Miscellaneous Facts

- A concussion is a concerning injury that needs management through good education using a unified '***team approach***' and strict practice of the School District 51 Concussion Management Protocol is highly recommended.
- Individuals should not return to school on the same day they sustained a concussion.
- Health care providers should communicate with the school staff and family on symptoms before making treatment / clearance decisions.
- Early referral to Neuropsychology and Vestibular Therapy.
- 'Sound judgment' by trained, experienced, knowledgeable clinicians is critical to good recovery.
- Catastrophic outcomes after concussion are very rare; yet, there is an increased susceptibility to repeat concussion in the days following injury.
- History of multiple concussions may lead to longer recovery times for subsequent concussions; those with multiple concussions should be treated more conservatively.
- Most uncomplicated concussions resolve within a few days to weeks.
- Injury and stress can play a role in persistent, prolonged symptoms and poor ImPACT™ test scores; thus if symptoms persist beyond 3-4 weeks and ImPACT™ test scores are persistently abnormal, specialist consultation with Neuropsychology is recommended.
- Rest is recommended for the first few days after concussion.
  - Physical and Cognitive rest may reduce 'brain strain & drain'.
  - Therefore, physical activity when individual is symptomatic should be avoided.
  - There is no research that 'complete or persistent rest' beyond a few days is an effective form of treatment.
  - Removing individuals from school for prolonged periods (weeks) can prolong or worsen symptoms.
- Request academic adjustments based on physical, cognitive, emotional and / or sleep / energy symptoms.
- Neurocognitive Tests (ImPACT™):
  - Is not a diagnostic tool.
  - It is simply one of several clinical measures used for thorough evaluation and management of concussions during recovery.
  - Should not be used in isolation as a **return-to-play** measure.
  - Without a good baseline study, tests administered after concussions are of limited value.
  - These tests can be less valid in the pediatric population.
- Return to full participation in sports and physical activity is highly recommended only after all steps of the School District 51 Concussion Management Protocol have been completed.

Selected References

1. McCrory, P., et al., Consensus statement on concussion in sport: the 4th International Conference on Concussion in Sport held in Zurich, November 2012. Br J Sports Med, 2013. **47**(5): p. 250-8.
2. Evans, RW. Concussion and mild traumatic brain injury. Up-To-Date. Accessed February 4th, 2015.
3. http://www.cdc.gov/concussion/; Accessed February 4th.
4. CDC (2012). Heads up to schools: A fact sheet for school nurses. A heads up for schools: Knowing your concussion.
5. Kelly, J.P. and J.H. Rosenberg, Diagnosis and management of concussion in sports. Neurology, 1997. **48**(3): p. 575-80.
6. REAP The Benefits of Good Concussion Management. McAvoy K. Center for Concussion. Rocky Mountain Hospital for Children, Denver, www.RockyMountainHospitalforChildren.com.

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