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ST. LUKE'S SPORTS MEDICINE CONCUSSION POLICY AND MANAGEMENT GUIDELINES

Protocol Statement: This document outlines protocol and procedures to assist in the management of concussions and the safe return to play and academics for student athletes managed by St. Luke's University Health Network and the St. Luke's affiliated agency including the Athletic Trainer.

Purpose: To develop and articulate a thorough method for the recognition, evaluation, and management of student-athletes who have sustained a concussion. Specifically, ensure the proper diagnosis and management of concussions as well as prevent prolonged recovery or permanent disability by comprehensively monitoring recuperation through regular contact with physicians and Licensed Athletic Trainers (LAT).

Definition of Concussion: A concussion is a brain injury and is defined as a complex pathophysiological process affecting the brain, induced by biomechanical forces. Several common features that incorporate clinical, pathologic and biomechanical injury constructs that may be utilized in defining the nature of a concussive head injury include:

1. Concussion may be caused either by a direct blow to the head, face, neck or elsewhere on the body with an "impulsive" force transmitted to the head.
2. Concussion typically results in the rapid onset of short-lived impairment of neurological function that resolves spontaneously and may occur with or without a loss of consciousness. However, in some cases, symptoms and signs may evolve over a number of minutes to hours.
3. Concussion may result in neuropathological changes, but the acute clinical symptoms largely reflect a functional disturbance rather than a structural injury and, as such, no abnormality is seen on standard structural neuroimaging studies.
4. Concussion results in a graded set of clinical symptoms that may or may not involve loss of consciousness. Resolution of the clinical and cognitive symptoms typically follows a sequential course. However, it is important to note that in some cases symptoms may be prolonged.

SECTION I: EDUCATION REQUIREMENTS

In accordance with the ***Safety in Youth Sports Act (November 9, 2011)***, the following educational programs and requirements for all St. Luke's affiliated groups including coaches, parents and student-athletes has been established.

1. A Sports Safety Informational Meeting that includes a discussion of sports related concussion, sudden cardiac death, and heat acclimatization guidelines will be held annually for coaches, parents and student-athletes.
2. Once each year, coaches will be required to complete a PA Department of Health approved concussion management certification course (CDC, NFHS, etc.) In addition, each year an member from the St. Luke's Sports Medicine Staff will review management guidelines with the Coaching Staff.
3. Parents will share in the success of the St. Luke's Sports Medicine Concussion Management Program by attending scheduled educational sessions and supporting their children as they adhere to the guidelines and progress through the recovery process.
4. All student-athletes will, at a minimum, complete baseline neuropsychological testing (ImPACT®) administered by a member of the St. Luke's Sports Medicine Team.
5. Student-athletes will be educated about the importance of reporting concussions and adhering to the St. Luke's Sports Medicine Concussion Management Program prior to each sports season.
6. A student desiring to participate in any athletic activity and the student's parent or guardian shall, each school year, sign and return to the school an acknowledgement of their receipt and review of concussion and traumatic brain injury information.
7. All members of the Athletic Training Staff/Sports Medicine Team who are authorized to make decisions on when the student-athlete can return to play must complete, or have completed, training in the evaluation and management of concussion. Material for this training is available on-line through the Pennsylvania and Departments of Education or Health (www.state.pa.us) and through the Centers for Disease Control and Prevention (www.cdc.gov).

SECTION II: PREVENTION STRATEGIES

Student-Athlete

1. Student-athletes will be educated on the importance of taking responsibility for reporting their signs and symptoms to their coach, parent, and AT.
2. The student-athlete will be educated on the importance of adhering to the concussion protocol.
3. Each student-athlete will be required to complete the baseline neuropsychological test (ImPACT®) Baseline testing will be completed prior to their first year of participation and every other year until graduation
4. The student-athlete is responsible for performing daily inspections of their equipment and must report any issues to the appropriate designate prior to the next team event.
5. The student athlete may not perform any maintenance on their equipment.

Coach

1. The concussion guidelines will be reviewed annually with coaches by members of the St. Luke's Sports Medicine Teams
2. Once each year, all Coaches will be required to complete a PA department of health approved concussion management certification course.
3. All headgear must be NOCSAE certified and fitted by a designate that has appropriate knowledge of equipment fitting. This designate should perform routine inspections to ensure equipment is in proper working order.

Parents

1. Parents will be educated on the importance of reporting their child's signs and symptoms to the coach or AT.
2. The parent will also be educated on the importance of adhering to the concussion protocol.

SECTION III: MANAGEMENT

Step 1: Acute Management

- A. Any student-athlete who exhibits any signs and/or symptoms of a concussion while participating on a school sponsored athletic team will be removed from the remainder of the event and not allowed to perform any activities that may increase the severity of the signs and/or symptoms.
- B. If an athletic trainer (AT) or a team physician is on site, the student-athlete will be referred to that individual for an immediate concussion evaluation using a standardized concussion evaluation form (SAC, SCAT 3, etc...).
- C. After examination by a team physician or AT, a student-athlete who is suspected to have suffered a concussion will be excluded from participation for the remainder of the day. Return to participation on the same day will only be allowed if the team physician and/or AT determine that no concussion or other brain injury has occurred and the student-athlete is otherwise in good health.
- D. The team physician, AT, or head coach must contact the student-athlete's parents or guardian if he or she is exhibiting any signs and/or symptoms of a concussion or other brain injury.
- E. If a physician or AT is not present at the event, the head coach for the team will be responsible for keeping the student-athlete out of play for the day and must contact the AT and parents or guardian of the student-athlete.

Step 2: Monitoring and Emergent Referral

- A. Following a suspected concussion, the LAT should perform serial monitoring every 15-20 minutes for signs of cognitive or neurological deterioration.
- B. Any deterioration or displaying of the following signs or symptoms will warrant immediate emergency referral.
 - i. Loss of consciousness
 - ii. Deterioration of neurological function
 - iii. Decreasing level of consciousness
 - iv. Abnormally unequal, dilated, or unreactive pupils
 - v. Any signs or symptoms of associated head/neck injuries, spine or skull fractures, or bleeding
 - vi. Changes in mental status
 - vii. Slurring of speech
 - viii. Headaches that are worsening over time
 - ix. Inability to recall new events after the injury (Antegrade amnesia)
- C. Parents will be notified of concussion.
 - a. A written copy of Home & School Instructions will be provided to and reviewed with the parents.
 - b. Emergency transport should always be offered even if not clinically mandated
- D. Student-athletes will be withheld from vigorous activity until cleared by a physician.

Step 3: Plan of Care

- A. The student-athlete will be referred to a physician trained in the evaluation and management of concussions. The AT will help to facilitate this appointment with a St. Luke's concussion specialist.
 - a. The physician will make return to school recommendations and articulate this with the student-athlete, parent/guarding, and AT
 - b. AT will be responsible for notifying coaches of the student-athletes concussion, and will be updated daily on their appropriate level of participation.
- B. The student athlete will be instructed to check in with the AT daily.
 - a. Graded Symptom Checklist (GSC) will be completed daily by the AT. The AT will maintain daily logs in HIPAA compliance.
 - b. Decline in condition will be communicated directly to the treating physician.
- C. The physician will establish post-concussive (neuropsychological [ImPACT®], vestibular, ocular, cognitive) testing timeline.
 - a. Athletes will not have more than one neuropsychological test in a seven-day period of time unless outlined in treatment plan of the physician.

Step 4: Return to Learn

- A. In Pennsylvania, BrainSTEPS teams are available to virtually any secondary school in the Commonwealth. These teams have been developed by the Brain Injury Association of Pennsylvania with funding from the Pennsylvania Department of Health and the Department of Education. BrainSTEPS teams are designed to support the staff, student, parents or guardians in a return to school after a brain injury. These teams work with all parties to identify and implement appropriate accommodations and modifications to manage the student's symptoms and to support their learning needs throughout their secondary school career. The school (e.g. teachers, school counselors, school nurse) and family should monitor the performance of the student closely for 2 weeks after the return to school. If the return to the classroom causes concussion symptoms to re-occur or if the student demonstrates uncharacteristic performance (e.g. reduced attention span, inability to take tests, acting out in class). The school should initiate a formal referral to the local BrainSTEPS team (www.brainsteps.net)
- B. The treating physician, AT, and Parents or Guardian will work together to notify the school nurse, and teachers of the student-athletes concussion, and possible classroom modifications.
 - Special classroom modifications may include but are not limited to.
 - a. Take rest breaks as needed
 - b. Spend fewer hours at school (have a shortened school day)
 - c. Be given more time to take tests or complete assignments. (All courses should be considered)
 - d. Receive help with schoolwork (e.g. pre-teaching, outlines, note taker).
 - e. Reduce time spent on the computer, reading, and writing.

- f. Be granted early dismissal from each class to avoid crowded hallways.
- g. No standardized testing (e.g. PSSA, SAT) during the initial recovery window of 2-4 weeks.

Step 5: Return to Play

- A. Return to play depends on several factors
 - a. Physical exam
 - b. Graded concussion symptom checklist
 - c. Past history of concussion or other brain injury
 - d. Neuropsychological (ImPACT®) testing scores
 - e. Recommendations of the St. Luke's medical staff and district AT
- B. The student athlete must meet **ALL** of the following criteria to return to play
 - a. Asymptomatic at rest and with exertion
 - b. ImPACT® scores within normal range of baseline and reviewed by concussion specialist
 - c. Written clearance from a physician
 - i. If written clearance from a physician does not align with the St. Luke's Concussion Management Protocol, the student-athlete will not be allowed to return to play. *Notes from outside physicians will not be used to override the St. Luke's protocol.
- C. Progression through the return to play protocol is individualized and will be determined on a case-by-case basis. The speed of progression will be established by collaboration between student-athlete, AT, and St. Luke's medical staff.
- D. Graduated return to play will be utilized. Each step will take, at a minimum, 24 hours unless the treating physician indicates otherwise. Student-athlete must remain asymptomatic prior to taking the next step. If symptoms return, a 24-hour suspension of progression will take place before resuming the level that the athlete completed without experiencing any signs or symptoms.
 - a. If symptoms return during progression, student-athlete should be removed from participation until symptoms resolve.
 - b. If symptoms do not resolve, student-athlete should be referred back to St. Luke's for re-evaluation.
- E. St. Luke's utilizes the Zurich Consensus Statement from the 4th International Congress on Concussion in Sport (Each step requiring a minimum of 24-hours)
 - a. Step 1: Symptom limited physical and cognitive rest
 - b. Step 2: Light aerobic exercises (i.e.: stationary bike, elliptical, static stretching)
 - c. Step 3: Sport-specific exercises (begin running program, initiate non-contact limited sport specific exercises)
 - d. Step 4: Non-Contact training drills (more complex sport specific training drills, may start resistance training)
 - e. Step 5: Full-Contact practice (following medial clearance, participate in normal training activities)
 - f. Step 6: Return to play (normal game play)
- F. ALL return to play guidelines must be met and each step must be completed in its entirety with AT clearance prior to being cleared to participate.

SECTION IV: RESOURCES

Resources on Interscholastic Sports Related Concussions and Head Injuries Internet Resources

Centers for Disease Control and Prevention – Concussion Toolkit

http://www.cdc.gov/concussion/HeadsUp/physicians_tool_kit.html

<http://www.cdc.gov/concussion/headsup/pdf/ACE-a.pdf>

http://www.cdc.gov/concussion/headsup/pdf/ACE_care_plan_school_version_a.pdf

http://www.cdc.gov/concussion/headsup/pdf/Concussion_in_Sports_palm_card-a.pdf

National Federation of State High Schools Association- Online “Concussion in Sports” training program.

www.nfhs.org

Brain Injury Association of Pennsylvania (BIAPA)

www.biapa.org

Pennsylvania Athletic Trainers Society (PATS)

www.gopats.org

National Collegiate Athletic Association (NCAA)

www.NCAA.org/health-safety

Pennsylvania Interscholastic Athletic Association (PIAA)

www.piaa.org

Pennsylvania Physical Therapy Association (PPTA)

www.ppta.org

Articles

“Consensus Statement on Concussion in Sport: 3rd International Conference on Concussion in

Sport held in Zurich, November 2008”. Clinical Journal of Sports Medicine, Volume 19, May 2009, pp.185-200

Halstad ME, Walter, KD and the Council on Sports Medicine and Fitness, Clinical Report: Sport-related Concussion in Children and Adolescents” Pediatrics Volume 126, September 2010, pp.597-615.