



POLICY: NOJHL PROTOCOLS

DATE: August 2011

SUBJECT: MANAGEMENT OF CONCUSSIONS

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- A. Sport concussions are defined as complex pathophysiological processes affecting the brain, induced by traumatic biomechanical forces:
- Concussion may be caused by a direct blow to the head, face, neck or elsewhere on the body with force transmitted to the head;
 - Concussion typically results in the rapid onset of short-lived symptoms that resolve spontaneously;
 - Concussion symptoms largely reflect a functional disturbance rather than a structural injury;
 - Concussion results in graded set of clinical symptoms the resolution of which typically follows a sequential course;
 - Concussion is generally associated with grossly normal neuroimaging (head CT or MRI) studies.
- B. The diagnosis of a suspected concussion is applicable to both medical and non-medical personnel and can include:
- Clinical symptoms, as reported by the athlete;
 - Physical signs, apparent to an observer;
 - Cognitive impairment;
 - Loss of consciousness.
- C. In all situations where a concussion is suspected the initial step is to remove the athlete from activity for proper evaluation.
- D. Loss of consciousness as evidenced by unresponsiveness to questions and stimuli or a lack of protective reflexes when falling, for example, however brief, denotes the presence of a concussion. **ALL OF THE FOLLOWING STEPS MUST OCCUR:**
- Athlete cannot return to play that day;
 - Athlete must be referred to rinkside or team physician for evaluation;
 - Formal evaluation with ImPACT and consultation with Neuropsychologist within 24-48 hours.
- E. In instances without identified loss of consciousness, the Team Athletic Trainer (CAT/ATC) will examine the athlete and administer the Post-Concussion Signs and Symptoms (PCSS) checklist (SCAT2):
- Examination is negative, PCSS are denied, conduct exertional tasks.

- b. Examination is positive, i.e., clear confusion, disorientation, emotional lability, and/or PCSS are reported, repeat evaluation process every 5 minutes for 15 minutes;
 - c. Medical referral is made to rinkside physician if observable signs or PCSS persist for greater than 15 minutes;
 - d. Re-examine and monitor every 15 minutes for possible deterioration in condition until symptoms resolve or team physician makes hospital referral.
- F. If athlete examination becomes negative, i.e., confusion clears, and PCSS are denied **within 15 minutes**, conduct rinkside cognitive evaluation with Standardized Assessment of Concussion (SAC) found within the SCAT2:
- a. If $SAC \geq 25$, conduct exertional tasks;
 - b. If $SAC < 24$, player is removed from the game and medical referral is made to rinkside physician.
- G. For athletes who are asymptomatic within 15 minutes of injury, conduct exertional tasks, such as 5 jumping jacks, 5 push-ups, 5 sit-ups, 5 squat thrusts:
- a. If observed signs remain absent and PCSS are denied, athlete may return to play that game/practice.
 - b. Return of observable signs, such as decreased balance, or PCSS are reported, athlete is removed from the game and medical referral is made to rinkside physician.
- H. Return to Play
- a. **Never return a symptomatic athlete to play**
 - b. Following a concussion, the athlete may be returned to play in the current competition **ONLY IF ALL CRITERIA ARE MET**:
 - i. No loss of consciousness;
 - ii. Observable signs and PCSS remit within 15 minutes;
 - iii. No significant cognitive deficits present ($SAC \geq 25$);
 - iv. No return of signs or PCSS following exertional testing.
 - v. Protective equipment, i.e., mouthguard and helmet, must be inspected and in proper condition.
 - c. Clinical caveats to consider when making same day return to play decisions
 - i. Age of player
 - ii. Concussion history
 - iii. Degree of force that precipitated the injury
 - iv. Style of play
- I. Players are referred for more thorough assessment with ImPACT and consultation with Neuropsychologist who:
- a. Are withheld from competition due to persistent observable signs (> 15 minutes);
 - b. Have persistent PCSS (> 15 minutes);
 - c. Have poor cognitive performance on SAC (< 24);
 - d. Have a personal history that warrants more conservative management;



- e. Experience the return of observable signs or PCSS following exertional tasks;
 - f. Experience the return or delayed onset of observable signs or PCSS following return to play or subsequent day(s).
- J. First post-injury examination is conducted within 24-48 hours:
- a. Neuropsychologist is notified of the injury and the post-injury examination
 - i. Mechanism of injury;
 - ii. Nature of initial symptoms;
 - iii. Symptom progression;
 - iv. Medical test data, if available.
 - b. ImPACT data are reviewed and compared to baseline data;
 - c. Balance testing (BESS) is repeated by CAT/ATC and compared to baseline performance
 - d. Results and recommendations are discussed with team CAT/ATC and team physician(s) as needed;
 - e. Written consult note is provided to the team within 24-48 hours;
 - f. Additional evaluation(s), if needed, will be based on individual factors:
 - i. Age of athlete
 - ii. Concussion history
 - iii. Nature of symptoms
 - iv. Severity of symptoms
 - v. Persistence of symptoms
 - vi. Psychological factors
- K. Athletes with documented subjective post-concussive symptoms will be monitored and evaluated at regular intervals by the ATC/CAT using a consistent symptom checklist, either paper-and-pencil or computerized questionnaire, if available.
- L. The athlete may return to competitive game play after completing the following steps:
- a. Rest, which may included cognitive rest as well, until determined to be asymptomatic for a minimum of 24 hours by **ALL OF THE FOLLOWING**:
 - i. Documented medical clearance from team physician
 - ii. Neuropsychological clearance from Neuropsychologist
 - iii. Behavioral clearance from team ATC/CAT, e.g., personal observations of player demeanor and personality, reports from parents or billets
 - iv. Balance testing (e.g., BESS) has normalized
 - b. Light aerobic activity, i.e., stationary bike.
 - c. Sport-specific exercises, such as skating.
 - d. Non-contact drills, flow drills and resistance training.
 - e. Full contact practice (requires prior documented clearance from team physician).
 - f. Competitive game play.
- M. Although each step typically occurs on a separate day the rate of progression through the RTP steps will be individualized and may be extended or expanded based on:
- a. Age of athlete



- b. Concussion history
 - c. Nature of symptoms
 - d. Severity of symptoms
 - e. Persistence of symptoms
 - f. Psychological factors
 - g. Style of play
- N. Return of observable signs or PCSS during any stage of the RTP process:
- a. Discontinue the current step
 - b. Return to rest for the remainder of the day
 - c. Attempt problematic step again the following day
 - d. May choose to repeat last successfully completed task prior to attempting problematic step
- O. Referral to local clinician for additional management or treatment:
- a. Prolonged recovery time
 - b. Lengthening recovery times with successive concussions
 - c. Complicated concussion history within or across seasons

This information represents a compilation of recommendations and guidelines issued and supported by various governing bodies, expert panels, government agencies and national organizations. Sources include: Summary and Agreement Statement of the First International Symposium on Concussion in Sport, Vienna, 2001; Summary and Agreement Statement of the Second International Symposium on Concussion in Sport, Prague 2004; Summary and Agreement Statement of the Second International Symposium on Concussion in Sport, Zurich 2008; National Athletic Trainers' Association Position Statement: Management of Sport Related Concussion, September 2004; Centers for Disease Control and Prevention, Traumatic Brain Injury Tool Kit, September 2006.