Concussion Management Program

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A sports concussion management program must be incorporated within each affiliate. All USA Hockey programs should follow this protocol as a minimum standard and conform to their individual state concussion statutes.

Accepted current medical practice and the law in most states requires that any athlete with a *suspected* **Sports Related Concussion** (**SRC**) is ***immediately removed from play***.

- A concussion is a traumatic brain injury- ***there is no such thing as a minor brain injury.***
- A player does not have to be "*knocked-out*" to have a concussion- ***less than 10% of players lose consciousness***.
- A concussion can result from a blow to head, neck, ***or body***.
- Concussions often occur to players who don't have or just released the puck, from open-ice hits, unanticipated hits, and illegal collisions.
- The **youth** hockey player's brain is ***more susceptible*** to concussion.
- Concussion in a young athlete may be *harder* to diagnosis, takes *longer* to recover, and is *more likely* to have a recurrence, which can be associated with serious long-term effects.
- The strongest predictor of slower recovery from a concussion is the severity of **initial symptoms** *in the first day or 2* after the injury.
- Treatment is individualized and it is impossible to predict when the athlete will be allowed to return to play- ***there is no standard timetable***.

A player with ***any*** **symptoms/signs** or a ***worrisome*** **mechanism of injury** has a concussion until proven otherwise:

"When in doubt, sit them out."

Follow these concussion management steps:

1. Remove immediately from play (training, practice, or game)
2. Inform the player's coach/parents or guardians.
3. Refer the athlete to a qualified health-care professional (as defined in state statute)
4. Initial treatment requires a short period of rest, but the athlete may participate in light exercise (if their symptoms are not made worse).
5. Begin a graded return-to-sport and return-to-learn.
6. Provide written medical clearance for return to play (the ***USA Hockey Return to Play Form*** is required)

Diagnosis

Players, coaches, officials, parents, and heath care providers should be able to recognize the symptoms/signs of a sport related concussion. (See attached ***Concussion Recognition Tool 6***)

Symptoms:

- Headache
- "Pressure in head"
- Neck Pain
- Nausea or vomiting
- Balance problems
- Dizziness
- Drowsiness
- Blurred vision
- Difficulty concentrating/remembering
- "Don't feel right"
- Sensitivity to light/noise
- More emotional or irritable
- Fatigue or low energy
- Feeling like "in a fog"
- Feeling slowed down
- Confusion
- Sadness
- Nervous or anxious

Observable Signs:

- Lying motionless on the playing surface
- Slow to get up after a direct or indirect hit to the head
- Disorientation or confusion
- Inability or slow to respond appropriately to questions
- Blank or vacant look
- Slow movement or incoordination
- Balance or walking difficulty
- Facial injury after head trauma

Management Protocol

1. If the player is ***unresponsive***- call for help & dial 911

2. If the athlete is ***not breathing***: start **CPR**

3. Assume a neck injury *until proven otherwise*

- ✓ DO NOT move the athlete.
- ✓ DO NOT rush the evaluation.
- ✓ DO NOT have the athlete sit up or skate off until you have determined:
  - no neck pain
  - no pain, numbness, or tingling
  - no midline neck tenderness
  - normal muscle strength
  - normal sensation to light touch

4. If the athlete is conscious & responsive without symptoms or signs of a neck injury…
- help the player off the ice to the locker room.
- perform an evaluation.
- do not leave them alone.

5. Evaluate the player in the locker room: **Concussion Recognition Tool 6** or other sideline assessment tools
- Ask about concussion ***symptoms.***
- Observe for concussion ***signs.***
- ***Memory Assessment***
  - → What venue are we at today?
  - → What period is it?
  - → Who scored last in this game?
  - → Did your team win the last game?
  - → Who was your opponent in the last game?

→ If a healthcare provider is not available, the player should be safely removed from practice or play and referral to a physician arranged.

6. A player with any symptoms or signs, disorientation, impaired memory, concentration, balance, or recall has a concussion and should not be allowed to return to play on the day of injury.

7. The player should not be left alone after the injury, and serial monitoring for deterioration is essential over the initial few hours after injury.

If any of the signs or symptoms listed below develop or worsen go to the **hospital emergency department** or dial **911**.

- Severe throbbing headache
- Dizziness or loss of coordination
- Ringing in the ears (tinnitus)
- Blurred or double vision
- Unequal pupil size
- No pupil reaction to light
- Nausea and/or vomiting
- Slurred speech
- Convulsions or tremors
- Sleepiness or grogginess
- Clear fluid running from the nose and/or ears
- Numbness or paralysis (partial or complete)
- Difficulty in being aroused

8. Concussion symptoms & signs *evolve over time*- the severity of the injury and estimated time to return to play are unpredictable.

9. A qualified health care provider guides the athlete through **Return-to-Learn** and **Return-to-Sport** strategies.

10. Written clearance from a qualified health care provider is required for an athlete to return to play without restriction (training, practice, and competition). Only the **USA Hockey Return to Play Form** is acceptable:

Return-to-Sport (RTS) Strategy: each step typically takes a minimum of 24 hours.

Step	Exercise Strategy	Activity at each step	Goal
1	Symptom-limited activity	Daily activities that do not exacerbate symptoms (e.g., walking)	Gradual reintroduction of work/school activities
2	Aerobic exercise **2A—Light** (up to approximately 55% max HR) **then** **2B—Moderate** (up to approximately 70% max HR)	Stationary cycling or walking at slow to medium pace. May start light resistance training that does not result in more than mild and brief exacerbation* of concussion symptoms.	Increase heart rate
3	Individual sport-specific exercise Note: If sport-specific training involves any risk of inadvertent head impact, medical clearance should occur prior to Step 3	Sport-specific training away from the team environment (e.g., running, change of direction and/or individual training drills away from the team environment). No activities at risk of head impact	Add movement, change of direction
Steps 4–6 should begin after the resolution of any symptoms, abnormalities in cognitive function and any other clinical findings related to the current concussion, including with and after physical exertion.			
4	Non-contact training drills	Exercise to high intensity including more challenging training drills (e.g., passing drills, multiplayer training) can integrate into a team environment.	Resume usual intensity of exercise, coordination, and increased thinking
5	Full contact practice	Participate in normal training activities	Restore confidence and assess functional skills by coaching staff
6	Return to sport	Normal game play	

*Mild and brief exacerbation of symptoms (i.e., an increase of no more than 2 points on a 0–10 point scale for less than an hour when compared with the baseline value reported prior to physical activity). Athletes may begin Step 1 (i.e., symptom-limited activity) within 24 hours of injury, with progression through each subsequent step typically taking a minimum of 24 hours. If more than mild exacerbation of symptoms (i.e., more than 2 points on a 0–10 scale) occurs during Steps 1–3, the athlete should stop and attempt to exercise the next day. Athletes experiencing concussion-related symptoms during Steps 4–6 should return to Step 3 to establish full resolution of symptoms with exertion before engaging in at-risk activities. Written determination of readiness to RTS should be provided by an HCP before unrestricted RTS as directed by local laws and/or sporting regulations.
HCP, healthcare professional; max HR, predicted maximal heart rate according to age (i.e., 220-age).

Return-to-Learn (RTL) Strategy

Step	Mental Activity	Activity at each step	Goal
1	Daily activities that do not result in more than a mild exacerbation* of symptoms related to the current concussion	Typical activities during the day (e.g., reading) while minimizing screen time. Start with 5–15 min at a time and increase gradually.	Gradual return to typical activities
2	School activities	Homework, reading or other cognitive activities outside of the classroom.	Increase tolerance to cognitive work
3	Return to school part-time	Gradual introduction of schoolwork. May need to start with a partial school day or with greater access to rest breaks during the day.	Increase academic activities
4	Return to school full time	Gradually progress in school activities until a full day can be tolerated without more than mild* symptom exacerbation.	Return to full academic activities and catch up on missed work

Following an initial period of relative rest (24–48 hours following an injury at Step 1), athletes can begin a gradual and incremental increase in their cognitive load. Progression through the strategy for students should be slowed when there is more than a mild and brief symptom exacerbation.

*Mild and brief exacerbation of symptoms is defined as an increase of no more than 2 points on a 0–10 point scale (with 0 representing no symptoms and 10 the worst symptoms imaginable) for less than an hour when compared with the baseline value reported prior to cognitive activity.