CONCUSSION PROTOCOL

All sports and free play are associated with the risk of a concussion, including playing, officiating, or participating in ice hockey. It is important that all participants and parents learn about concussion prevention, recognition, treatment and return to play. KVHA requires all coaches to complete a concussion certification program every three seasons. At the time of KVHA registration, Players and parents are provided the following information about concussion, including the signs and symptoms of a concussion and the concussion protocol.

A concussion is a type of traumatic brain injury (TBI) that occurs typically to players who don't have or just released the puck, from open-ice hits, unanticipated hits, and illegal collisions with blows to the head or neck, or by a hit to the body that causes the head and brain to move quickly back and forth. Bouncing or twisting of the brain in the skull can cause chemical changes and sometimes stretching of the brain stem. A concussion disrupts the way the brain normally works. Most concussions are mild, but all concussions should be taken seriously because permanent brain damage and death can occur from another injury. A concussion may be difficult to recognize. A player does not have to be "knocked-out" to have a concussion- less than 10% of players lose consciousness. Signs and symptoms may show up right after the injury or can take hours or days to fully appear. 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."

If a person reports one or more symptoms or demonstrates any signs of concussion after a blow to the head, neck or body:

1. Remove the player immediately from play (training, practice, or game)
2. A player should not return to play the same day he/she has been removed from a game.
3. Inform the player's parents or guardians that return to play requires an assessment by a medical professional
4. Initial assessment and treatment typically includes a period of rest of uncertain length to be determined by the medical professional until symptoms and signs resolve.
5. Begin a graded return-to-learn/school and then sport.
6. Provide written medical clearance from the medical professional for return to play (the USA Hockey Return to Play Form is required)

A concussed brain needs time to heal, and the person is much more likely to have another concussion if they return too soon. Repeat concussions are usually more severe and take longer to heal.

USA Hockey's Concussion Management Program can be found on the USA Hockey website at**:**
usahockey.com/safety-concussion

2023 Concussion Management Program

Michael Stuart MD
Kevin Margarucci ATC

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.

CRT6™

Concussion Recognition Tool

To Help Identify Concussion in Children, Adolescents and Adults

What is the Concussion Recognition Tool?

A concussion is a brain injury. The Concussion Recognition Tool 6 (CRT6) is to be used by non-medically trained individuals for the identification and immediate management of suspected concussion. It is not designed to diagnose concussion.

Recognise and Remove

Red Flags: CALL AN AMBULANCE

If **ANY** of the following signs are observed or complaints are reported after an impact to the head or body the athlete should be immediately removed from play/game/activity and transported for urgent medical care by a healthcare professional (HCP):

- **Neck pain or tenderness**
- **Seizure, 'fits', or convulsion**
- **Loss of vision or double vision**
- **Loss of consciousness**
- **Increased confusion or deteriorating conscious state (becoming less responsive, drowsy)**
- **Weakness or numbness/tingling in more than one arm or leg**
- **Repeated Vomiting**
- **Severe or increasing headache**
- **Increasingly restless, agitated or combative**
- **Visible deformity of the skull**

Remember

- In all cases, the basic principles of first aid should be followed: assess danger at the scene, check airway, breathing, circulation; look for reduced awareness of surroundings or slowness or difficulty answering questions.
- Do not attempt to move the athlete (other than required for airway support) unless trained to do so.
- Do not remove helmet (if present) or other equipment.
- Assume a possible spinal cord injury in all cases of head injury.
- Athletes with known physical or developmental disabilities should have a lower threshold for removal from play.

If there are no Red Flags, identification of possible concussion should proceed as follows:

Concussion should be suspected after an impact to the head or body when the athlete seems different than usual. Such changes include the presence of **any one or more** of the following: visible clues of concussion, signs and symptoms (such as headache or unsteadiness), impaired brain function (e.g. confusion), or unusual behaviour.

Developed by: The Concussion in Sport Group (CISG)

Supported by:

International Olympic Committee · FEI · FIA · FIFA · IIHF · World Rugby

CRT6 Concussion Recognition Tool

To Help Identify Concussion in Children, Adolescents and Adults

1: Visible Clues of Suspected Concussion

Visible clues that suggest concussion include:

- Loss of consciousness or responsiveness
- Lying motionless on the playing surface
- Falling unprotected to the playing surface
- Disorientation or confusion, staring or limited responsiveness, or an inability to respond appropriately to questions
- Dazed, blank, or vacant look
- Seizure, fits, or convulsions
- Slow to get up after a direct or indirect hit to the head
- Unsteady on feet / balance problems or falling over / poor coordination / wobbly
- Facial injury

2: Symptoms of Suspected Concussion

Physical Symptoms
Headache
"Pressure in head"
Balance problems
Nausea or vomiting
Drowsiness
Dizziness
Blurred vision
More sensitive to light
More sensitive to noise
Fatigue or low energy
"Don't feel right"
Neck Pain

Changes in Emotions
More emotional
More Irritable
Sadness
Nervous or anxious

Changes in Thinking
Difficulty concentrating
Difficulty remembering
Feeling slowed down
Feeling like "in a fog"

Remember, symptoms may develop over minutes or hours following a head injury.

3: Awareness

(Modify each question appropriately for each sport and age of athlete)

Failure to answer any of these questions correctly may suggest a concussion:

"Where are we today?"

"What event were you doing?"

"Who scored last in this game?"

"What team did you play last week/game?"

"Did your team win the last game?"

Any athlete with a suspected concussion should be - IMMEDIATELY REMOVED FROM PRACTICE OR PLAY and should NOT RETURN TO ANY ACTIVITY WITH RISK OF HEAD CONTACT, FALL OR COLLISION, including SPORT ACTIVITY until ASSESSED MEDICALLY, even if the symptoms resolve.

Athletes with suspected concussion should **NOT**:

- Be left alone initially (at least for the first 3 hours). Worsening of symptoms should lead to immediate medical attention.
- Be sent home by themselves. They need to be with a responsible adult.
- Drink alcohol, use recreational drugs or drugs not prescribed by their HCP
- Drive a motor vehicle until cleared to do so by a healthcare professional

British Journal of Sports Medicine

MAHA CONCUSSION FACT SHEET

WHAT IS A CONCUSSION?

A concussion is a type of traumatic brain injury—or TBI—caused by a bump, blow, or jolt to the head or by a hit to the body that causes the head and brain to move quickly back and forth. This fast movement can cause the brain to bounce around or twist in the skull, creating chemical changes in the brain and sometimes stretching and damaging the brain cells.

HOW CAN I HELP KEEP MY CHILDREN SAFE?

Sports are a great way for children and teens to stay healthy and can help them do well in school. To help lower your children's or teens' chances of getting a concussion or other serious brain injury, you should:

- Help create a culture of safety for the team.
- Work with their coach to teach ways to lower the chances of getting a concussion.
- Talk with your children or teens about concussion and ask if they have concerns about reporting a concussion. Talk with them about their concerns; emphasize the importance of reporting concussions and taking time to recover from one.
- Ensure that they follow their coach's rules for safety and the rules of the sport.
- Tell your children or teens that you expect them to always practice good sportsmanship.
- When appropriate for the sport or activity, teach your children or teens that they must wear a helmet to lower the chances of the most serious types of brain or head injury. However, there is no "concussion-proof" helmet. So, even with a helmet, it is important for children and teens to avoid hits to the head.

HOW CAN I SPOT A POSSIBLE CONCUSSION?

Children and teens who show or report one or more of the signs and symptoms listed below—or simply say they just "don't feel right" after a bump, blow, or jolt to the head or body—may have a concussion or other serious brain injury.

Signs Observed by Parents or Coaches

- Appears dazed or stunned.
- Forgets an instruction, is confused about an assignment or position, or is unsure of the game, score, or opponent.
- Moves clumsily.
- Answers questions slowly.
- Loses consciousness (even briefly).
- Shows mood, behavior, or personality changes.
- Cannot recall events prior to or after a hit or fall.

Symptoms Reported by Children and Teens

- Headache or "pressure" in head.
- Nausea or vomiting.
- Balance problems or dizziness, or double or blurry vision.
- Bothered by light or noise.
- Feeling sluggish, hazy, foggy, or groggy.
- Confusion, or concentration or memory problems.
- Just not "feeling right," or "feeling down."

MAHA CONCUSSION FACT SHEET continued

Talk with your children and teens about concussion. Tell them to report their concussion symptoms to you and their coach right away. Some children and teens think concussions are not serious or worry that if they report a concussion they will lose their position on the team or look weak. Be sure to remind them that it is better to miss one game than the whole season.

Concussions affect each child and teen differently. While most children and teens with a concussion feel better within a couple of weeks, some will have symptoms for months or longer. Talk with your children's or teens' health care provider about if their concussion symptoms do not go away or if they get worse after they return to their regular activities.

WHAT ARE MORE SERIOUS DANGER SIGNS TO LOOK OUT FOR?

In rare cases, a dangerous collection of blood (hematoma) may form on the brain after a bump, blow, or jolt to the head or body and can squeeze the brain against the skull. Call 9-1-1 or take your child or teen to the emergency department right away if, after a bump, blow, or jolt to the head or body, he or she has one or more of these danger signs:

- One pupil is larger than the other.
- Drowsiness or inability to wake up.
- A headache that gets worse and does not go away.
- Slurred speech, weakness, numbness, or decreased coordination.
- Repeated vomiting or nausea, convulsions, or seizures (shaking or twitching).
- Unusual behavior, increased confusion, restlessness, or agitation.
- Loss of consciousness (passed out/knocked out). Even a brief loss of consciousness should be taken seriously.

Children and teens who continue to play while having concussion symptoms or who return to play too soon—while the brain is still healing— have a greater chance of getting another concussion. A repeat concussion that occurs while the brain is still healing from the first injury can be very serious and can affect a child or teen for a lifetime. It can even be fatal.

What Should I Do If My Child or Teen Has a Possible Concussion? As a parent, if you think your child or teen may have a concussion, you should:

1. Remove your child or teen from playing.
2. Keep your child or teen out of play the day of the injury. Your child or teen should be seen by a health care provider and only return to play with permission from a health care provider who is experienced in evaluating for concussion.
3. Ask your child's or teen's health care provider for written instructions on helping your child or teen return to school. You can give the instructions to your child's or teen's school nurse and teacher(s) and return-to-play instructions to the coach and/or athletic trainer.

Do not try to judge the severity of the injury yourself. Only a health care provider should assess a child or teen for a concussion. Concussion signs and symptoms often show up soon after the injury. But you may not know how serious the concussion is at first, and some symptoms may not show up for hours or days. The brain needs time to heal after a concussion. A child's or teen's return to school and sports should be a gradual process that is carefully managed and monitored by a health care provider.

To learn more, go to www.cdc.gov/HEADSUP or **usahockey.com/safety-concussion**

USA HOCKEY CONCUSSION MANAGEMENT
RETURN TO PLAY FORM

The USA Hockey Concussion Management Protocol and most state statutes require that an athlete be removed from any training, practice or game if they exhibit any signs, symptoms or behaviors consistent with a concussion or are suspected of sustaining a concussion. The player should not return to physical activity until he or she has been evaluated by a qualified medical provider who has provided written clearance to return to sports.

This form is to be used after an athlete has been removed from athletic activity due to a suspected concussion and must be signed by their medical provider in order to return without restriction to training, practice or competition.

Player Name:_____ Date of Birth:_____/_____/_____

District/Affiliate:_____ Name of Person Reporting:_____

Association and Team:_____ Date of Injury:_____/_____/_____

Location of Injury/Arena:_____

Injury Signs/Symptoms:_____

_____

Print Health Care Professional Name:_____ License No:_____

Address:_____ Phone Number:_____

I HEREBY AUTHORIZE THE ABOVE NAMED ATHLETE TO RETURN TO ATHLETIC ACTIVITY FOR FULL PARTICIPATION WITHOUT RESTRICTION.

Signature:_____ Date:_____/_____/_____

I AM THE PARENT OR LEGAL GUARDIAN OF THE PLAYER IDENTIFIED ON THIS FORM AND I CONSENT TO THEIR RETURN TO ATHLETIC ACTIVITY WITHOUT RESTRICTION.

Parent/Legal Guardian Name:_____

Signature:_____ Date:_____/_____/_____

I AM THE COACH OF THE PLAYER IDENTIFIED AND I CONFIRM RECEIPT OF THIS CLEARANCE FORM ACKNOWLEDGING THE HEALTH CARE PROVIDER AND PARENT HAVE APPROVED THE ATHLETE'S RETURN TO PARTICIPATION WITHOUT RESTRICTION.

Coach Name:_____

Signature:_____ Date:_____/_____/_____