



WATER POLO CANADA'S

CONCUSSION EDUCATION TOOLKIT

FOR COACHES, TRAINERS & SAFETY PERSONNEL

PUBLISHED SEPTEMBER 2025

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	2
INTRODUCTION	3
PRE-SEASON CONCUSSION EDUCATION CHECKLIST	4
PRE-SEASON CONCUSSION EDUCATION TEAM MEETING GUIDE	7
PRE-SEASON CONCUSSION EDUCATION FACT SHEET	9
<i>What is a concussion?</i>	9
<i>When should I suspect a concussion?</i>	9
<i>What causes a concussion?</i>	9
<i>What are the visual signs of a concussion?</i>	10
<i>What are the symptoms of a concussion?</i>	10
<i>What should I do if I suspect a concussion?</i>	11
<i>When can the player return to school, work and sports?</i>	11
<i>Return-to-School/Work Strategy</i>	11
<i>Water Polo-Specific Return-to-Sport Strategy</i>	13
<i>How long will it take for the player to recover?</i>	14
<i>How can I help prevent concussions and their consequences?</i>	14
<i>Concussion Codes of Conduct (Optional)</i>	15
TIPS TO HELP PREVENT CONCUSSIONS AND OTHER INJURIES GUIDE	17
<i>Tips to assist in preventing concussions & other injuries in & out of the water</i>	17
<i>Tips to teach and enforce on your team</i>	17
<i>Tips to prevent concussions among players on your team</i>	18
CONCUSSION ACTION PLAN GUIDE	19
<i>Sample Concussion Action Plan for Practices & Training Sessions</i>	21
<i>Sample Concussion Action Plan for Games</i>	23
WATER POLO RETURN-TO-SPORT STRATEGY	25
<i>Return-to Sport Strategy - Field Player</i>	27
<i>Return-to-Sport Strategy - Goalie</i>	35
RETURN TO SCHOOL/WORK STRATEGY	45
CONCUSSION FREQUENTLY ASKED QUESTIONS (FAQ) GUIDE	47
<i>General</i>	47
<i>Concussion Prevention and Management</i>	47
<i>Water Polo Canada/National Championship League</i>	55
<i>Provincial Specifications</i>	57
REFERENCES	58
APPENDIX A - WPC CONCUSSION PATHWAY	59
APPENDIX B - CONCUSSION RECOGNITION TOOL 6 (CRT6)	60
	61

ACKNOWLEDGEMENTS

Water Polo Canada would like to take this opportunity to thank the following individuals for their invaluable contributions, expert guidance, and thorough review of Water Polo Canada's updated Concussion Education Toolkits (May 2025): Stephanie Cowle and Claire Westmacott from Parachute, the Institut National du sport du Québec, Émilie Cassidy, Dr. Mickey Moroz, Patrick Oaten and Rebekka Steenkamer from Water Polo Canada.

We acknowledge the financial support of the Government of Canada through Sport Canada, a branch of the Department of Canadian Heritage



Canadian
Heritage

Patrimoine
canadien

INTRODUCTION

Water Polo Canada (WPC) has developed the Concussion Education Toolkit as a turn-key guide that can be used by our stakeholders as they prepare for each water polo season. Safe sport is a crucial element in Canadian sport and WPC considers the areas of concussion prevention and management as important subsections that must be addressed.

This toolkit includes information adapted with permission by Parachute. Parachute is Canada's national charity dedicated to injury prevention. Parachute collaborates with sport organizations, schools, government and health professionals to build a consistent, evidence-based approach to concussion across Canada's amateur sport system.

It also includes information found within WPC's Concussion Protocol, which was developed by the Institut National du sport du Québec (INS Québec) in collaboration with WPC. By focusing on science, innovation and technology, INS Québec represents the "ingenuity behind the performance" by offering cutting-edge solutions driven by a team of experts and partners to push the limits of each of our athletes. INS Québec and its network support more than 3,300 athletes, including more than 550 high-level athletes—mainly members of Canadian teams—and nearly 2,000 next-generation athletes and some 900 coaches. INS Québec provides scientific, medical and professional services. As a member of the Canadian Olympic and Paralympic Sport Institute Network, INS Québec is active across Québec thanks to its network of 8 regional multi-sport training centres, 18 single-sport training centres and its Olympic Park Complex, which is home to 10 high-level training groups. INS Québec receives support from the Ministère de l'Éducation, Sport Canada, Own the Podium, the Canadian Olympic Committee, the Canadian Olympic Foundation, the Canadian Paralympic Committee and the Coaching Association of Canada, in addition to private partners, such as Sports Experts, CISCO, Bell, B2dix and Mondo.

The content of this toolkit will be updated as additional information becomes available.



PRE-SEASON CONCUSSION EDUCATION CHECKLIST

Water Polo Canada (WPC) has developed the Pre-Season Concussion Education Checklist to identify how Canadian water polo coaches should approach concussion education for themselves and their team(s). The checklist breaks down the resources that should be used by coaches at each stage of their concussion education process. It is highly recommended that coaches complete the checklist tasks in the order they are presented prior to the start of each season.

***Note:** The "Required Resource(s)" can be found within this toolkit and on [WPC's website](#).

PRE-SEASON EDUCATION TASK	REQUIRED RESOURCE(S)	STATUS
Review WPC's concussion education resources to familiarize yourself with concussion prevention, recognition and management.	<ol style="list-style-type: none">1. Pre-Season Education Checklist2. Pre-Season Concussion Education Fact Sheet3. Pre-Season Concussion Education Team Meeting Guide4. Concussion FAQ Guide5. The Return-to-Sport Strategy6. The Return-to-School/Work Strategy7. Tips to Assist in Preventing Concussions and Other Injuries in Water Polo Guide8. WPC's Concussion Protocol	<input type="checkbox"/>
Complete the NCCP Making Head Way in Sport e-Learning Module (Updated 2024)	The Coaching Association of Canada's Locker	<input type="checkbox"/>

PRE-SEASON EDUCATION TASK	REQUIRED RESOURCE(S)	STATUS
<p>Develop a Concussion Action Plan (you can create your own or use the sample template available in the Concussion Action Plan Guide).</p>	<p>The Concussion Action Plan Guide</p>	<input type="checkbox"/>
<p>Schedule a Pre-Season Concussion Education Team Meeting at the beginning of the water polo season.</p>	<p>Pre-Season Concussion Education Team Meeting Guide</p>	<input type="checkbox"/>
<p>Include the following information in your Pre-Season Concussion Education Team Meeting:</p> <ul style="list-style-type: none"> • The definition of concussion • Possible causes/mechanisms of injury (i.e. how a concussion might occur) • Common signs and symptoms • Steps that can be taken to prevent concussions and other injuries from occurring in water polo. • What to do when a player suffers a suspected concussion or more serious head injury • What measures should be taken to ensure proper medical assessment, Return-to-School and Return-to-Sport strategies. • Return-to-Sport medical clearance requirements. • Your Concussion Action Plan for Practices and Games. • Tips to Prevent Concussions and other injuries for athletes 	<ol style="list-style-type: none"> 1. Pre-Season Concussion Education Team Meeting Guide 2. Pre-Season Concussion Education Fact Sheet 3. Concussion Action Plan Guide 4. Tips to Assist in Preventing Concussions and Other Injuries Guide 5. Concussion FAQ Guide 	<input type="checkbox"/>

PRE-SEASON EDUCATION TASK	REQUIRED RESOURCE(S)	STATUS
<p>Following the meeting, ask the participants to read the Pre-Season Concussion Education Fact Sheet. As an optional step, you can ask that your players and parents sign the appropriate stakeholder Concussion Code of Conduct to understand their roles and responsibilities.</p>	<ol style="list-style-type: none"> 1. Water Polo Canada's Pre-Season Concussion Education Fact Sheet 2. Concussion Codes of Conduct (Optional) 	<input type="checkbox"/>
<p>Explain where the WPC Concussion Education Toolkit or its individual resources are located for public use.</p>	<p>The Concussion tab under the Safe Sport section of <u>WPC's website</u>.</p>	<input type="checkbox"/>

PRE-SEASON CONCUSSION EDUCATION TEAM MEETING GUIDE

Although concussions have received increased attention and focus in recent years, it is imperative that the importance of concussion education and awareness is recognized. Ensuring that the proper concussion prevention and management occurs, largely depends on the annual education of all current and future stakeholders (players, parents/caregivers, coaches, officials, trainers and integrated support staff). This guide should be used by coaches to plan, schedule and execute their club's Pre-Season Concussion Education Team Meeting (PSCETM).



WHO

Individuals who should attend the PSCETM are:

- Players
- Coaches
- Parents/Caregivers
- Team managers
- of the player(s)

***Note:** *These meetings can be specific to each team, age group or the club as a whole.*



WHAT

The information that should be covered during the PSCETM is:

- The definition of concussion
- The possible mechanisms of injury (general and water polo specific)
- Common signs and symptoms
- Steps to prevent concussions and other injuries from occurring in sport
- What to do when an athlete has suffered a suspected concussion or more serious head injury
- What measures should be taken to ensure proper medical assessment
- Return-to-School/Work and Return-to-Sport strategies
- Return-to-Sport medical clearance requirements

31

WHEN

The PSCETM should be scheduled prior to the start of the season at a time that is convenient for its attendees (e.g. at the start of the season's first practice).

**Note: These PSCETMs should occur annually regardless of whether the coach or athletes on the team remain the same.*



WHERE

The PSCETM can be completed in a variety of venues including on pool deck, a rented classroom, in a park/sport field, or in a virtual meeting online.



HOW

The WPC Concussion Education Toolkit is a turn-key guide for clubs and club coaches and includes vital concussion education information. Before coaches begin hosting these meetings, clubs should decide whether they will require their players, parents and coaches to sign a Concussion Code of Conduct (located at the conclusion of the [Pre-Season Concussion Education Fact Sheet](#)). It is imperative that all meeting attendees understand the information that was discussed and are aware that more information is available on [WPC's website](#).

PRE-SEASON CONCUSSION EDUCATION FACT SHEET



WHAT IS A CONCUSSION?

A concussion is a brain injury that cannot be seen on x-rays, CT or MRI scans. It affects the way a player thinks and can cause a variety of symptoms. Continuing to participate in an activity when you may have a concussion increases the risk of more severe, longer-lasting concussion symptoms. In addition, continued participation while suffering from a concussion increases the risk of other injury and anyone with a suspected concussion should be seen by a medical doctor or nurse practitioner as soon as possible.



WHAT CAUSES A CONCUSSION?

Any blow to the head, face or neck, or somewhere else on the body that causes a sudden jarring of the head may cause a concussion.

Examples include getting hit in the head with a ball or an elbow during a game or practice, slipping on the pool deck, falling hard on the floor in gym class, or experiencing whiplash in a motor vehicle collision.



WHEN SHOULD I SUSPECT A CONCUSSION?

A concussion should be suspected in anyone who sustains a significant impact to the head, face, neck, or body and anyone who reports one or more symptoms of a suspected concussion or demonstrates one or more observable signs of a suspected concussion.

Some players will develop symptoms immediately, while others will develop delayed symptoms, beginning 24 to 48 hours after the injury.



WHAT ARE THE VISUAL SIGNS OF A CONCUSSION?

Visual signs of a concussion may include:

- Lying motionless in the water or on pool deck
- Slow to react in the water or move back into position after a direct or indirect hit to the head
- Not being able to swim in a straight line
- Disorientation or confusion or inability to respond appropriately to questions
- Blank or vacant stare
- Unresponsive
- Unsteady on feet, balance problems, poor coordination, wobbly
- Facial injury
- Clutching head



WHAT ARE THE SYMPTOMS OF A CONCUSSION?

A person does not need to lose consciousness to have had a concussion.

Common symptoms include:

- Headaches or head pressure
- Dizziness
- Nausea and vomiting
- Blurred or fuzzy vision
- Sensitivity to light or sound
- Balance problems
- Feeling tired or lacking energy
- Not thinking clearly
- Feeling slowed down
- "Don't feel right"
- Feeling more emotional, easily upset or angered
- Sadness
- Nervousness or anxiety
- Difficulty concentrating
- Difficulty remembering
- Feeling like "in a fog"
- Sleeping more or sleeping less
- Having a hard time falling asleep



WHAT SHOULD I DO IF I SUSPECT A CONCUSSION?

If any player is suspected of sustaining a concussion during participation in a water polo game, practice or dryland training they should be immediately removed from the game or practice and undergo medical assessment as soon as possible. Any player who is suspected of having sustained a concussion must not be allowed to return to the same game, practice or training.

Continuing to play with a possible concussion puts the player at risk of further injury, including Second Impact Syndrome (SIS). SIS is a swelling of the brain that can occur when a player sustains a second head injury before a previous head injury has healed. Although rare, SIS can lead to permanent injury and death.

It is important that ALL players with a suspected concussion undergo medical assessment by a medical doctor or nurse practitioner as soon as possible. **It is also important that ALL players with a suspected concussion receive written medical clearance from a medical doctor or nurse practitioner before returning to activities with risk or impact of falls.**



WHEN CAN THE PLAYER RETURN TO SCHOOL, WORK AND SPORTS?

It is important that all players diagnosed with a concussion follow a stepwise return to school, work and sports-related activities, guided by the following Return-to-School/Work and Return-to-Sport Strategies. Note that these strategies begin at the same time, can happen concurrently and the first step of both is the same. It is important that players return to full-time school activities, if applicable, and provide a medical clearance letter before progressing to step 4 of Return-to-Sport.



RETURN-TO-SCHOOL/WORK STRATEGY

The Return-to-School Strategy should be used to help players make a gradual return to school/work activities. Progression through the steps will look different for each player. It is common for symptoms to worsen mildly and briefly with activity. If the player's symptoms worsen more than this, pause and adapt activities as needed.

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
1	Activities of daily living and relative rest (first 24-48 hours).	Typical activities at home (e.g. preparing meals, social interactions, light walking) that do not result in more than mild and brief worsening of symptoms. Minimize screen time.	Gradual reintroduction of typical activities.
2	School/work activities with encouragement to return to school/work (as tolerated).	Homework, reading or other cognitive activities at school/work or home. Take breaks and adapt activities as needed. Gradually resume screen time, as tolerated.	Increase tolerance to cognitive work and connect socially with peers.
3	Part-time or full days at school/work with accommodations (as needed).	Gradually introduce schoolwork/work. Part-time school/work days with access to breaks and accommodations may be required. Gradually reduce accommodations related to the concussion and increase workload.	Increase academic and professional activities.
4	Return to school/work full-time.	Return to full days at school/work and academic and professional activities, without accommodations related to the concussion.	Return to full academic and professional activities.

Table adapted from: Patricios, Schneider et al., 2023; Reed, Zemek et al., 2023

Water Polo-Specific Return-to-Sport Strategy

An outline of the Water Polo Return-to-Sport Strategy is located on the pages that follow. This Strategy should be used to help participants, parents/caregivers, coaches/trainers, teachers, and medical professionals to partner in allowing the player to make a gradual return to sport activities. The player should spend a minimum of 24 hours at each step before progressing to the next. It is common for symptoms to worsen **mildly and briefly** with activity and this is acceptable through steps 1 to 3. If the player's symptoms worsen more than this, they should stop the activity and try resuming the next day at the same step. It is important that players return to full-time school activities, if applicable, and provide their coach with a Medical Clearance Letter before progressing to step 4.

***Note:** Water Polo Canada's Concussion Education Toolkit includes two detailed Return-to-Sport Strategies (one specific to field players and one specific to goalies), as well as a visual representation of WPC's Concussion Pathway.



HOW LONG DOES IT TAKE FOR THE PLAYER TO RECOVER?

Concussion recovery time varies from player to player. While an exact timeline is not possible to provide, most players will make a complete recovery within four weeks. In some cases, it can take weeks or months to heal. If a person has had a concussion before, it may take them longer to heal the next time.

Approximately 15 to 30 percent of patients will experience persisting symptoms (> four weeks) which may require additional medical assessment and management.

Remember to always take the time you need to recover, as recommended by your medical doctor or nurse practitioner. Recovering from a concussion is a process that takes patience.



HOW CAN I HELP PREVENT CONCUSSIONS AND THEIR CONSEQUENCES?

Concussion prevention, recognition and management require players to follow the rules and regulations of their sport, respect their opponents, avoid head contact and report suspected concussions.

To learn more about concussions please visit: WPC's website or www.parachute.ca/concussion.

Concussion Codes of Conduct (*Optional*)

Please note that some provinces and/or territories have their own Codes of Conduct with specific requirements. The Water Polo Canada Concussion Education Toolkit does not replace any requirements under the law in those regions. The Concussion Education Toolkit was designed to provide you and other coaches, players and parents across Canada with concussion resources that are Water Polo-specific and meet your unique role to support player development while providing a safe participation environment. **If your province or territory has an existing Code of Conduct, this will carry the legal role for players in those areas. Please be sure to always consult with your sport governing body for more information.**

CONCUSSION CODE OF CONDUCT

Water Polo Coaches, Trainers & Safety Personnel

I will help players on my team to prevent concussion.

- I will ensure all players on my team wear the proper waterpolo equipment and wear correctly.
- I will help players develop their skills and strength so they can play to the best of their ability.
- I will respect the rules of water polo and ensure all players on my team do as well.
- I will respect other coaches, trainers, safety personnel, officials and all those involved with my league and team.
- I will ensure players on my team respect others and play fair and safe.

I will take concussions seriously and educate my team to help ensure their health and safety.

- I understand a concussion is a serious brain injury that can have both short- and long-term effects.
- I understand that any blow to the head, face, or neck, or a blow to the body that causes a sudden jarring of the head may cause a concussion.
- I understand that a player doesn't need to lose consciousness to have had a concussion.
- If I suspect a player may have a concussion, I will stop them from participating in practice or gameplay immediately. I understand that if I think I have a concussion, I should stop coaching, training, or safety person responsibilities/activities immediately.
- I understand continuing to participate in water polo and other physical activity with a suspected concussion increases a player's risk of more severe, longer-lasting symptoms, and increases their risk of other injuries.
- I will make concussion education a priority on my team.
- I will follow and enforce the concussion protocols and policies that have been established by Water Polo Canada, my Province and the National Championship League (NCL).

I will create an environment where players on my team feel safe and can always speak up.

- I will encourage players not to hide any concussion symptoms or continue to participate through the pain.
- I will ensure my players know to tell me, another coach, an official, parent or other adult they trust if they, or a teammate, experience any concussion symptoms after an impact.
- I will lead by example. I will tell a fellow coach, official, team trainer, safety person, or healthcare professional if I am experiencing any concussion symptoms.
- I will create opportunities for players to speak with me about any concerns related to concussion before or after each training session, practice, or game.
- I will support all players on my team to take the time they need to recover.
- I understand and respect that any player with a suspected concussion must be removed from the game or practice immediately and not be permitted to return until they undergo a medical assessment by a doctor and have been medically cleared to return to training, practice, or gameplay.
- I understand players will have to follow the Water Polo Return-to-Sport strategy.
- I will respect my fellow coaches, trainers, safety personnel, parents and medical professionals and any decisions made with regards to the health and safety of my team.

Signature of Coach/Trainer/Safety Personnel

Date

TIPS TO HELP PREVENT CONCUSSIONS AND OTHER INJURIES IN WATER POLO GUIDE

TIPS TO ASSIST COACHES, TRAINERS AND SAFETY PERSONNEL IN PREVENTING CONCUSSIONS & OTHER INJURIES IN & OUT OF THE WATER

Be sure to enforce and integrate these tips into practices and games wherever possible. This will help your team build critical skills, respect themselves and others in the pool, and stay safe.

There are a variety of drills you can run to help players learn to keep their head up while playing and improve safe handling of the ball. Some examples include:

- When your players are swimming head-up front crawl with the ball, ask them to focus on one point on the other end of the pool. For example, a sign or the lifeguard chair.
- When your players are swimming head-up front crawl with the ball, ask them to look up and over the top of the ball.
- To help your players swim head-up front crawl in a straight line and ensure that they are maintaining their ball awareness, you can use the following drill: Ask your players to swim head-up front crawl, either the entire length of the pool or only half-way, while looking towards the right or left. Once they have finished, they must complete the same exercise looking in the opposite direction.
- Another drill that is useful in maintaining awareness and that the player keeps their head-up while swimming is a swimming, changing direction drill:
 - Start with all of the players spread out in the pool facing the coach.
 - On each whistle, the coach will point in a direction. Whichever direction he/she points is the direction that the players have to swim.
 - The players must keep their eyes on the coach at all times so they know which direction to swim.
 - If the coach points to the back then they swim water polo backstroke.

****Note:*** This drill can be adapted to include a water polo ball where each time the player changes direction, they pick the ball up from underneath. If the coach points to the back then the player would swim layout with the ball.

Tips to Teach and Enforce on Your Team:

- Commit to strong skill and strength development.
- Understand proper technique and follow the rules of the game.
- Practice fair play and respect the safety of yourself and everyone in the water.
- Ensure you are correctly wearing the appropriate equipment (ex. mouthguards, protective/goalie helmets or game caps).
- Never hit, strike, kick or head-butt a player from behind.
- Never hit, strike, kick or head-butt an opponent's head.
- Keep your head up when you have the ball. Don't put yourself in a vulnerable position.
- Avoid violent contact with a player if they are in a vulnerable position, such as with their back facing you.
- Be aware and stay alert.
- Control the ball responsibly.
- Communicate with your teammates. If you think a teammate may have a concussion, report symptoms to your coach, team trainer, or safety personnel.
- Remove yourself from the water if you experience any concussion symptoms after a hard hit by the ball or contact with another player. Report symptoms to your coach, team trainer or safety personnel.

Tips to Help Prevent Concussion Among Players on Your Team:

- If you have a large group of players, have them number off and swim in lines or in circles from fastest to slowest to avoid swimming into each other or causing a head on collision.
- Remove nets and other hazards during swimming to avoid potential injury.
- When players on your team are passing the ball to their teammates, encourage them to always be aware, keep their head up, and be ready to catch the ball.
- Ensure that players are matched up with players of equal strength and abilities in drills such as blocking.
- Focus on good technique defensively to decrease the odds of getting hit in the face while blocking.
- Ensure that players do not try to retrieve the ball in the net during a drill. Remind them to wait until there is no one shooting, or take short breaks during the drill for your players to retrieve their balls.
- Establish a team rule where there are to be no shots on net after the coach whistles for the players to stop the drill and/or return to the side of the pool.
- For grassroots level water polo programs, use nets that can deform (i.e. inflatable nets) when being struck with the ball to allow some of the energy to be absorbed before potentially ricocheting into the player's face.

CONCUSSION ACTION PLAN GUIDE

Having a Concussion Action Plan will ensure that all those involved with your water polo team know what to do and what their role is when a concussion is suspected in a practice or in a game. The Concussion Action Plan will serve as a step-by-step guide to help your team respond to concussions properly. To make sure concussions are managed safely and effectively, implement an action plan that coaches, trainers, players and their parents/caregivers are all involved in.

Steps to create a Concussion Action Plan:

1. **Identify safety personnel** who can assist with managing the health of the team and are knowledgeable about concussions, know the action plan and know what to do when a concussion is suspected. This might include a team trainer, athletic therapist, doctor, designated person certified in first aid or another person responsible for ensuring the concussion protocol is followed.

**Note: In Ontario, Rowan's Law protocol requires that there is a designated individual responsible for ensuring that concussion protocol is followed.*

2. **Provide players and families with concussion resources** so everyone knows what to look for to keep players safe.

3. **Always have a Concussion Recognition Tool (CRT)** at practices and games so that you have a list of concussion signs and symptoms available, and information on the first steps to take when a concussion is suspected.

4. **Use the sample practice and game action plan templates** at the end of this document to create a Concussion Action Plan for your water polo team.

If you suspect a concussion has occurred:

1. Coach or trainer immediately removes the player from the practice or training session.
2. Coach or trainer ensures the player is not left alone. Monitor signs and symptoms using the Concussion Recognition Tool (CRT) and **DO NOT** administer any medication. The player must not return to practice or training that day.
3. Coach informs the player's parent/caregiver or emergency contact about the suspected concussion and provides them with all relevant concussion resources and links.
4. Parent/caregiver or emergency contact ensures the player is evaluated by a medical doctor or nurse practitioner as soon as possible.
5. Coaches, trainers and parents/caregiver share the responsibility to communicate with the player to ensure that if they are diagnosed with a concussion, they are following Water Polo Canada's, the province's, and the National Championship League (NCL)'s concussion protocol and policies and a medically-supervised Water Polo Return-to-Sport strategy. **Players may only return to full practice and gameplay when they have been cleared by their doctor.**

If you notice any "red flag" symptoms:



"Red flag" symptoms can be signs of a more serious injury.

Get medical help immediately if you notice that a player has any of the following symptoms:

- Neck pain or tenderness
- Vomiting more than once
- Growing confusion
- Seizures or convulsions
- Weakness or tingling in their arms or legs
- Increasingly restless, agitated or combative behaviour
- Double vision
- Severe or increasing headache
- Deteriorating conscious state or loss of consciousness
- If there is loss of consciousness, initiate the Emergency Action Plan and call an ambulance.

If the player is unconscious or you suspect a neck injury, continue to monitor airway, breathing and circulation (ABCs). Do not attempt to remove any equipment. In this situation, monitoring the athlete's ABCs can be completed by a lifeguard.

SAMPLE CONCUSSION ACTION PLAN FOR PRACTICES OR TRAINING SESSIONS

Team Name: _____ Trainer: _____

Coach: _____ Safety Personnel: _____

Start your water polo season by setting your team up for a safe, healthy and successful season. Fill in the below table to create your team's Concussion Action Plan for Practices and/or Training Sessions.

Be aware of "red flag" symptoms, which can be signs of a more serious injury. If any are present, initiate the Emergency Action Plan. If a player is unconscious or a neck injury is suspected, do not attempt to move the player or remove equipment unless there is a concern for their breathing and/or you are appropriately trained to do so.

If you suspect a concussion has occurred:

ACTION	PERSONNEL RESPONSIBLE (NAME, TITLE)	EMERGENCY CONTACT NUMBER	STATUS
Coach removes the player from the practice or training session.			<input type="checkbox"/>
Coach ensures the player is not left alone. Monitor signs and symptoms using the <u>CRT6</u> and DO NOT administer any medication. The player must not return to practice, training or other physical activity that day.			<input type="checkbox"/>
Coach informs the player's parent/caregiver or emergency contact about the suspected concussion and provides them with all relevant <u>WPC</u> and <u>Parachute</u> concussion resources and links.			<input type="checkbox"/>

ACTION	PERSONNEL RESPONSIBLE (NAME, TITLE)	EMERGENCY CONTACT NUMBER	STATUS
<p>Parent/caregiver ensures the player is assessed by a medical doctor or nurse practitioner as soon as possible.</p>			<input type="checkbox"/>
<p>Coaches, trainers and parents share the responsibility to communicate with the player to ensure that if they are diagnosed with a concussion, they are following Water Polo Canada's, the province's, and the National Championship League (NCL)'s concussion protocol and policies and a medically supervised <u>Water Polo Return-to-Sport</u> <u>strategy</u>. Players may only return to full practice and game play when they have been cleared by their doctor.</p>			<input type="checkbox"/>

SAMPLE CONCUSSION ACTION PLAN FOR GAMES

Team Name: _____ Trainer: _____

Coach: _____ Safety Personnel: _____

Start your water polo season by setting your team up for a safe, healthy and successful season. Fill in the below table to create your team's Concussion Action Plan for Games.

Be aware of "red flag" symptoms, which can be signs of a more serious injury. If any are present, initiate the Emergency Action Plan. If a player is unconscious or a neck injury is suspected, do not attempt to move the player or remove equipment unless there is a concern for their breathing and/or you are appropriately trained to do so.

If you suspect a concussion has occurred:

ACTION	PERSONNEL RESPONSIBLE (NAME, TITLE)	EMERGENCY CONTACT NUMBER	STATUS
Official stops the game when an injury is suspected.			<input type="checkbox"/>
Coach removes the player from the game.			<input type="checkbox"/>
Coach ensures the player is not left alone. Monitor signs and symptoms using the <u>CRT6</u> and DO NOT administer any medication. The player must not return to the gameplay that day.			<input type="checkbox"/>
Coach informs the player's parent/caregiver or emergency contact about the suspected concussion and provides them with all relevant <u>WPC</u> and <u>Parachute</u> concussion resources and links.			<input type="checkbox"/>

ACTION	PERSONNEL RESPONSIBLE (NAME, TITLE)	EMERGENCY CONTACT NUMBER	STATUS
<p>Parent/caregiver, chaperone, team manager or coach ensures the player is assessed by a medical doctor or nurse practitioner as soon as possible.</p>		<input type="checkbox"/>	
<p>Coaches, trainers and parents share the responsibility to communicate with the player to ensure that if they are diagnosed with a concussion, they are following Water Polo Canada's, the province's, and the National Championship League (NCL)'s concussion protocol and policies and a medically supervised <u>Water Polo Return-to-Sport strategy</u>. Players may only return to full practice and game play when they have been cleared by their doctor.</p>		<input type="checkbox"/>	

RETURN-TO-SPORT STRATEGY

This water polo specific Return-to-Sport Strategy was developed as part of Water Polo Canada's (WPC) Concussion Protocol by the Institut National du sport du Québec (INS Québec) in collaboration with WPC. It ensures that correct activities are completed at the appropriate stages of an athlete's return-to-sport journey and is an important tool for stakeholders. This tool is a recommendation and should not replace medical advice.

Return-to-Sport Summary:

1 Follow the WPC Return-to-School/Work Strategy and Return-to-Sport Strategies

These strategies are designed to begin at the same time, happen concurrently and the first step of both is the same. Therefore, please review both strategies to understand the correct stage sequencing for a safe, stepwise return to school, work and sports after a concussion.

2 Progressing through the Strategies

The player should spend a minimum of 24 hours at each step before progressing on to the next. It is common for a player's symptoms to worsen slightly with activity. This is acceptable as they progress through steps 1 to 3 of Return-to-Sport, so long as symptom exacerbation is:

- **mild:** symptoms worsen by only one to two points on a zero-to-10 scale, and
- **brief:** symptoms settle back down to pre-activity levels within an hour.

If the player's symptoms worsen more than this, they should stop the activity and try resuming the next day at the same step.



3 Return to Full Contact Sport Activities

Players who have been determined to have not sustained a concussion and provide a Medical Assessment Letter indicating they can return to school, work and sport activities without restriction.

Players who have been diagnosed with a concussion can be considered for medical clearance to return to sport activities with risk of contact or fall once they have successfully completed:

- all steps of the Return-to-School/Work Strategy (if applicable), and
- steps 1 to 3 of the Water Polo-Specific Return-to-Sport Strategy.

The final decision to medically clear a player to return to full game activity should be based on the clinical judgment of the medical doctor or nurse practitioner taking into account the player's past medical history, clinical history, physical examination findings and the results of other tests and clinical consultations where indicated (i.e. neuropsychological testing, diagnostic imaging).

To progress to step 4 of the Water Polo-Specific Return-to-Sport Strategy, each player that has been diagnosed with a concussion must provide their coach with a standardized Medical Clearance Letter that specifies that a medical doctor or nurse practitioner has personally evaluated the patient and has cleared the player to return to sports. In geographic regions of Canada with limited access to medical doctors (i.e. rural, remote or northern communities), a licensed healthcare professional (such as a nurse) with pre-arranged access to a medical doctor or nurse practitioner can provide this documentation.

A copy of the Medical Clearance Letter should also be submitted to sports organization officials that have injury reporting and surveillance programs where applicable.

Players who have been provided with a Medical Clearance Letter may progress through steps 4, 5 and 6 of the Water Polo-Specific Return-to-Sport Strategy. If the player experiences any new concussion-like symptoms while returning to play, they should be instructed to stop playing immediately, notify their parents/caregivers (if they are a minor), coaches, trainer, teachers, or employer and return to step 3 to establish the full resolution of symptoms. Medical clearance is required again before progressing to step 4.

In the event that the player sustains a new suspected concussion, the WPC Concussion Protocol should be followed as outlined here.

- Who: Medical doctor, nurse practitioner
- Document: Medical Clearance Letter



WATER POLO SPECIFIC RETURN-TO-SPORT STRATEGY (FIELD PLAYER)

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
1	Activities of daily living and relative rest (first 24-28 hours)	Typical activities at home (e.g. preparing meals, social interactions, light walking). Minimize screen time.	Gradual reintroduction of work/school activities
After a maximum of 24 to 48 hours after injury, progress to Step 2.			
2A	Light effort aerobic exercise	<ul style="list-style-type: none">Start with light aerobic exercise*, such as stationary cycling and walking at a slow to medium paceMay begin light resistance training that does not result in more than mild and brief worsening of symptomsExercise up to approximately 55% of maximum heart rateTake breaks and modify activities as needed	Increase heart rate
<i>*Note: Members of WPC's National Teams must consult the team physician prior to the commencement of Step 2A.</i>			
2B	Moderate effort aerobic exercise	<ul style="list-style-type: none">Gradually increase tolerance and intensity of aerobic activities, such as stationary cycling and walking at a brisk paceExercise up to approximately 70% of maximum heart rateTake breaks and modify activities as needed.	

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
		<p><u>Examples:</u></p> <p>Warm up:</p> <ul style="list-style-type: none"> • Stationary bike or inclined treadmill for 5 min @ 50% HR max <p>Exercises:</p> <ul style="list-style-type: none"> • Stationary bike for 20 min @ 70% HR max in interval sets • Floor stretching routine: Gluteals, Latissimus, Quadriceps, Hamstrings, Adductors, Butterfly stretch, Happy baby pose, Pigeon stretch • Foam roller on key areas: hips, back and shoulders • Mobility work for hip flexion, rotations, extension 	

If the player can tolerate moderate aerobic exercise, progress to **Step 3**

3	Individual sport-specific activities, without risk of inadvertent head impact	<ul style="list-style-type: none"> • Add sport-specific activities (e.g., running, changing direction, individual drills) • Perform activities individually and under supervision from a teacher, parent/caregiver or coach • Progress to where the player is free of concussion-related symptoms, even when exercising 	Increase the intensity of aerobic activities and introduce low-risk sport-specific movements.
----------	---	--	---

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
<p><u>Examples:</u></p> <p>Warm up:</p> <ul style="list-style-type: none"> • Dryland with the team • 200m freestyle without flip turns at each end of the pool • 3 min of eggbeater • 5 min of passing while facing a partner <p>Cardiovascular:</p> <ul style="list-style-type: none"> • Interval swim sets 3 x 5 x 25m progressive intensity up to 70% alt 25m 50% (375 m total) 20 sec rest between sets <p>Technical work:</p> <ul style="list-style-type: none"> • 5 min of passing with 2 partners • 3 x 50m eggbeater with alternate side sliding • Make 10 shots at the net without opponents or goalie <p>Cool down:</p> <ul style="list-style-type: none"> • 100m freestyle @ 50% intensity • Foam rolling • Stretching <p>NO HEAD IMPACT ACTIVITIES</p>			

MEDICAL CLEARANCE

If the player has completed return to school (if applicable) and has been medically cleared, progress to **Step 4**.

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
4	Non-contact training drills and activities	<ul style="list-style-type: none"> Progress to exercises with no body contact at high intensity, including more challenging drills and activities (e.g., passing drills, multi-athlete training and practices) 	Resume usual intensity of exercise, co-ordination and activity-related cognitive skills

Examples:

Warm up:

- Dryland with the team (include 3 min of skipping rope)
- 4 x 50m freestyle with diving start
- 50m eggbeater
- 50m breaststroke
- 25m water polo backstroke + 25m eggbeater and vertical jumps
- 5 x 10 sec breath hold with head underwater (alt 10 sec rest)

Cardiovascular:

- 5 x 25m catch-up: 60%-70%-80%-90%-100% (30 sec active rest throwing ball between reps)
- 5 x 25m sprint head up (30 sec active rest throwing ball between reps)
- 2 x 25m breaststroke

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
		<ul style="list-style-type: none"> • 5 x 1/2 pool sprints, spin and receive long pass + simulate post shot (return water polo backstroke easy) <p>Technical work:</p> <ul style="list-style-type: none"> • 3 min passing with 3 other players • 5 x 10 sec mirror drills with an opponent (alt 20 sec passive rest/set) • 10 x 5m sprint with the ball, fake and shoot on net with goalie and 1 defender • 10 x 2vs1 + goalie, receive pass and shoot on net <p>Cool down:</p> <ul style="list-style-type: none"> • 200m easy • Foam rolling • Stretching <p>Strength training:</p> <ul style="list-style-type: none"> • Keep resistance below 80% 1RM and avoid jumping • Olympic lifting or exercises where head is below the level of the hips (i.e. back extensions on a bench) • Progressively increase external resistance for multi-joint exercises <p>MAY START PROGRESSIVE RESISTANCE TRAINING</p>	

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
<p>If the player can tolerate usual intensity of activities with no return of symptoms, progress to Step 5.</p>			
5	<p>Return to all non-competitive activities, full-contact practice and physical education activities</p>	<ul style="list-style-type: none"> • Progress to higher-risk activities including typical training activities, full-contact sport practices and physical education class activities. • Do not participate in competitive gameplay <p><u>Examples:</u></p> <p>Warm up:</p> <ul style="list-style-type: none"> • Dryland with the team • 100m freestyle with flip turns at the ends of the pool • 5 x (10m eggbeater + 6 turbo* + freestyle to finish pool) • Alternate 5 x (10m eggbeater + 4 consecutive jumps + freestyle to finish pool) • 5 min passing with 1 partner 	<p>Return to activities that have a risk of falling or body contact, restore confidence and assess functional skills by coaching staff</p>

**Turbo: Fast/short/choppy strokes*

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
		<p>Cardiovascular:</p> <ul style="list-style-type: none"> • 5 x 25m catch-up: 60%-70%-80%-90%-100% (30 sec rest) • 5 x 25m all-out sprint with head up • 2 x 25m breaststroke • 5 x ½ pool sprints, receive pass and finish ½ pool easy with the ball (Rest 1 min) • 5 x ½ pool sprint, spin and receive long pass + simulate post shot (return water polo backstroke easy) • Active rest, passing with horizontal movement around block technique. <p>Technical work:</p> <ul style="list-style-type: none"> • 3 vs. 3 simulations in small surface • Progress to 6vs6 full size playing area <p>Cool down:</p> <ul style="list-style-type: none"> • 200m easy freestyle • Foam rolling • Stretching <p>Strength training:</p> <ul style="list-style-type: none"> • Return to normal resistance loads • Olympic lifting • Valsalva technique 	

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
If the player can tolerate non-competitive, high-risk activities, progress to Step 6 .			
6	Return to sport	Unrestricted game play and physical activity	
RETURN TO SPORT IS COMPLETE			

Table adapted from: Patricios, Schneider et al., 2023; Reed, Zemek et al., 2023



WATER POLO SPECIFIC RETURN-TO-SPORT STRATEGY (GOALIE)

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
1	Activities of daily living and relative rest (first 24-28 hours)	Typical activities at home (e.g. preparing meals, social interactions, light walking). Minimize screen time.	Gradual reintroduction of work/school activities
After a maximum of 24 to 48 hours after injury, progress to Step 2.			
2A	Light effort aerobic exercise	<ul style="list-style-type: none">Start with light aerobic exercise*, such as stationary cycling and walking at a slow to medium paceMay begin light resistance training that does not result in more than mild and brief worsening of symptomsExercise up to approximately 55% of maximum heart rateTake breaks and modify activities as needed	Increase heart rate
<i>*Note: Members of WPC's National Teams must consult the team physician prior to the commencement of Step 2A.</i>			
2B	Moderate effort aerobic exercise	<ul style="list-style-type: none">Gradually increase tolerance and intensity of aerobic activities, such as stationary cycling and walking at a brisk paceExercise up to approximately 70% of maximum heart rateTake breaks and modify activities as needed.	

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
		<p><u>Examples:</u></p> <p>Warm up:</p> <ul style="list-style-type: none"> • Stationary bike or inclined treadmill for 5 min @ 50% HR max <p>Exercises:</p> <ul style="list-style-type: none"> • Stationary bike for 20 min @ 70% HR max in interval sets • Tennis ball throws against neutral color wall: <ul style="list-style-type: none"> ◦ 5 right hand throws with right hand catch ◦ 5 left hand throws with left hand catch ◦ 10 throws with alternate throwing and catching hands • Floor stretching routine: Gluteals, Latissimus, Quadriceps, Hamstrings, Adductors, Butterfly stretch, Happy baby pose, Pigeon stretch • Foam roller on key areas: hips, back and shoulders • Mobility work for hip flexion, rotations, extension 	

If the player can tolerate moderate aerobic exercise, progress to **Step 3**

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
3	Individual sport-specific activities, without risk of inadvertent head impact	<ul style="list-style-type: none"> • Add sport-specific activities (e.g., running, changing direction, individual drills) • Perform activities individually and under supervision from a teacher, parent/caregiver or coach • Progress to where the player is free of concussion-related symptoms, even when exercising 	Increase the intensity of aerobic activities and introduce low-risk sport-specific movements.

Examples:

Warm up:

- Dryland with the team
- 200m freestyle without flip turns at each end of the pool
- 3 minutes of eggbeater
- 5 min of passing while facing a partner

Cardiovascular:

- Interval swim sets 3 x 5 x 25m progressive intensity up to 70% alt 25m 50% (375 m total) 20 sec rest between sets

Technical work:

- In the pool
 - Circuit training: 3x (5 sec eggbeater hands up, 6x lateral lunges alt sides, 10 sec crazy hands, 10 sec flutter kick against wall)

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
		<ul style="list-style-type: none"> ◦ 5 min passes with 1 partner at increasing distance ◦ 10 x 10sec of reaction drills with side to side or vertical jumping ◦ 10x blocking lobed o throws in free space (no net) • Out of the water, tennis ball throws against a wall: <ul style="list-style-type: none"> ◦ 5 right hand throws with right hand catch ◦ 5 left hand throws with left hand catch ◦ 10 throws with alternate throwing and catching hands ◦ Goalie can also be challenged on land with passing and reaction drills with partner <p>Cool down:</p> <ul style="list-style-type: none"> • 100m freestyle @ 50% intensity • Foam rolling • Stretching <p>NO HEAD IMPACT ACTIVITIES</p>	

MEDICAL CLEARANCE

If the player has completed return to school (if applicable) and has been medically cleared, progress to **Step 4**.

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
4	Non-contact training drills and activities	<p><u>Examples:</u></p> <p>Warm-up:</p> <ul style="list-style-type: none"> • Dryland with the team (include skipping rope x 3 min) • 4 x 50m freestyle with diving start • 50m eggbeater • 50m breaststroke • 25m water polo backstroke + 25m eggbeater and vertical jumps • 5 x 10 sec breath hold with head underwater (alt 10 sec rest) <p>Cardiovascular:</p> <ul style="list-style-type: none"> • 4 x 6 Lunge and jump to the same side • 4 x 6 Lunge and jump to opposite side • 4 x 6 Jump and lunge to the same side • 4 x 6 Jump and lunge to the opposite side • Goalie position T-test* 3 x 5 x 5 with 30 sec rest between reps and 3 min between sets <p><i>*T-Test: A test of sliding forwards then laterally in the shape of a T.</i></p>	Resume usual intensity of exercise, co-ordination and activity-related cognitive skills

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
	<p>Technical work:</p> <ul style="list-style-type: none"> • 5 min passing with 1 partner at increasing distances • 10 x blocking lobed shots vs. single attacker • 10 x top corner blocking (2 on 1 play or single attacker vs goalie) • 10 x blocking direct shots from various field player positions, left to right then right to left (2 on 1 play or single attacker vs goalie) • Reaction drills following ball movement 5 x 10 reps left/right/up <p><i>This is also an opportune period to practice decision making with match video situations and other volume dependant on visual and cognitive findings at Step 1.</i></p> <p>Cool down:</p> <ul style="list-style-type: none"> • 200m easy • Foam rolling • Stretching <p>Strength training:</p> <ul style="list-style-type: none"> • Keep resistance below 80% 1RM and avoid jumping • Olympic lifting or exercises where head is below the level of the hips (i.e. back extensions on a bench) • Progressively increase external resistance for multi-joint exercises 		

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
MAY START PROGRESSIVE RESISTANCE TRAINING			
If the player can tolerate usual intensity of activities with no return of symptoms, progress to Step 5 .			
5	<p>Return to all non-competitive activities, full-contact practice and physical education activities</p>	<ul style="list-style-type: none"> Progress to higher-risk activities including typical training activities, full-contact sport practices and physical education class activities. Do not participate in competitive gameplay <p><u>Examples:</u></p> <p>Warm up:</p> <p>Continue to monitor heart rate throughout this period. Ensure return to adequate heart rate between longer sets or after very intense drills.</p> <ul style="list-style-type: none"> Dryland with the team 100m freestyle with flip turns at the ends of the pool 3 x ½ distance vertical eggbeater sideways and switch to the end of the lap 3 x ½ distance vertical eggbeater and slide horizontally every 5 seconds, finish freestyle 	<p>Return to activities that have a risk of falling or body contact, restore confidence and assess functional skills by coaching staff</p>

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
		<ul style="list-style-type: none"> • 3 x ½ distance vertical eggbeater and jump vertically with two hands every 5 seconds, finish freestyle • 5 min passing with partner face-to-face <p>Cardiovascular:</p> <ul style="list-style-type: none"> • 4 x 6 Lunge and jump to the same side • 4 x 6 Lunge and jump to opposite side • 4 x 6 Jump and lunge to the same side • 4 x 6 Jump and lunge to the opposite side • Circuit training: 3x (5 sec eggbeater hands up, 6x lateral lunging alt sides, 10 sec crazy arms*, 10 sec flutter kick against the wall) <p><i>*Crazy Arms: This exercise works on arm speed while static. Goalie raises both arms above their head and back down to the water as fast as they can. Arms should be raised from the side and not in front.</i></p> <p>Technical work:</p> <ul style="list-style-type: none"> • 5 mins passing with 1 partner at increasing distances. 	

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
		<ul style="list-style-type: none"> • Practice game situations with $\frac{1}{2}$ field or play (i.e. positions 1-2-3-6 only) • 2 x 10 blocking lobed shots random sides • 2 x 10 blocking straight top corner shots random sides • 2 x 10 blocking skipped shots random sides • 15 x blocking 2 on 1 situation, full net to cover <p>Cool down:</p> <ul style="list-style-type: none"> • 200m easy freestyle • Foam rolling • Stretching <p>Strength training:</p> <ul style="list-style-type: none"> • Return to normal resistance loads • Olympic lifting • Valsalva technique 	
If the player can tolerate non-competitive, high-risk activities, progress to Step 6 .			
6	Return to sport	Unrestricted game play and physical activity	
RETURN TO SPORT IS COMPLETE			
Table adapted from: Patricios, Schneider et al., 2023; Reed, Zemek et al., 2023			

RETURN-TO-SCHOOL/WORK STRATEGY

The following is an outline of the Return-to-School Strategy that should be used to help players, parents/caregivers and teachers/employers to collaborate in allowing the player to make a gradual return to school/work activities. Depending on the severity and type of the symptoms present, players will progress through the following stages at different rates. This tool is a recommendation and should not replace medical advice.

Medical clearance is not required to return to school/work, except for full participation in school-based sport and physical activity. For players returning to work, medical clearance should be sought if work-related tasks put the safety of the player or others at risk. Return to sport and physical activity should be guided by the Return-to-Sport Strategy.

Students/working professionals do not need to be symptom-free to return to school and complete absence from school/work for more than one week is not recommended. It is common for a player's symptoms to worsen slightly with activity. This is acceptable as they progress through steps so long as the symptom exacerbation is:

- **mild:** Symptoms worsen by only one to two points on a zero-to-10 scale, and
- **brief:** Symptoms settle back down to pre-activity levels within an hour.

If the player's symptoms worsen more than this, they should pause and adapt activities as needed.

Players should also be encouraged to ask their school if they have a school-specific Return-to-Learn Program in place to help student-players make a gradual return to school.

STEP	ACTIVITY	DESCRIPTION	GOAL OF EACH STEP
1	Activities of daily living and relative rest (first 24 to 48 hours)	<ul style="list-style-type: none"> Typical activities at home (e.g. preparing meals, social interactions, light walking) that do not result in more than mild and brief worsening of symptoms. Minimize screen time. 	Gradual reintroduction of typical activities
After a maximum of 24 to 48 hours after injury, progress to Step 2 .			
2	School/work activities with encouragement to return to school/work (as tolerated)	<ul style="list-style-type: none"> Homework, reading or other light cognitive activities at school/work or at home. Take breaks and adapt activities if they result in more than mild and brief worsening of symptoms. Gradually resume screen time, as tolerated. 	Increase tolerance to cognitive work and connect socially with peers
If the student/working professional can tolerate school activities, progress to Step 3 .			
3	Part-time or full days at school/work with accommodations (as needed)	<ul style="list-style-type: none"> Gradually reintroduce schoolwork. Build tolerance to the classroom and school/work environment over time. <p>Part-time days with access to breaks throughout the day and other accommodations may be required.</p>	Increase academic activities

- Gradually reduce accommodations related to the concussion and increase workload.

If the student/working professional can tolerate full days without accommodations for concussion, progress to **Step 4**.

4

Part-time or full days at school/work with accommodations (as needed)

- Return to full days at school/work and academic/professional activities, without accommodations related to the concussion.
- For return to sport and physical activity, including physical education class, refer to the Return-to-Sport Strategy.

Return to full academic and professional activities.

RETURN TO SCHOOL/WORK IS COMPLETE

Table adapted from: Patricios, Schneider et al., 2023; Reed, Zemek et al., 2023

***Note:** *It is important that youth and adult student-athletes return to full-time school/work activities before progressing to step 4 of the Water Polo-Specific Return-to-Sport Strategy.*

***Note:** *These steps can also be used as a Return-to-Work Strategy** for those water polo players that train or compete in the Active for Life stages (i.e. Masters water polo, adult provincial League or club adult water polo program) or for coaches, officials and trainers.*

******A more tailored and detailed Return-to-Work strategy is available for stakeholders on Parachute's website in both of Canada's official languages (English and French).

A visual representation of the WPC Concussion Pathway can be seen in Appendix A.

CONCUSSION FAQ GUIDE

This guide provides a list of Frequently Asked Questions (FAQs) on a variety of topics that have not been explained in Water Polo Canada's (WPC) other concussion education resources or key information that WPC would like to emphasize for our members. These questions have been subdivided into smaller sections for ease. It is recommended that stakeholders refer to this guide when necessary.

1

WHO IS RESPONSIBLE FOR RECOGNIZING A SUSPECTED CONCUSSION?

Although the formal diagnosis of concussion should be made following a medical assessment, all sport stakeholders including players, parents/caregivers, teachers, coaches, trainers, officials, integrated support staff and licensed healthcare professionals are responsible for the recognition and reporting of players with a suspected concussion. This is particularly important because many sport and recreation venues will not have access to on-site licensed healthcare professionals.

Suspected concussion:

- A concussion should be suspected if a player sustains an impact to the head, face, neck or body and:
 - demonstrates one or more observable signs of a suspected concussion **(as detailed in the Concussion Recognition Tool 6)**,
 - OR reports one or more symptoms of suspected concussion **(as detailed in CRT 6)**.
- This includes cases where the impact wasn't witnessed, but anyone witnesses the player exhibiting one or more observable signs of suspected concussion or the player reports one or more symptoms of suspected concussion to one of their peers, parents/caregivers, coaches or teachers.
- In all cases of suspected concussion, the player should be removed from the activity immediately and undergo medical assessment as soon as possible.



Delayed signs and symptoms

- If a player is removed from play following an impact for cautionary reasons, but there are no observable signs or symptoms of a suspected concussion, then the player can be returned to play but should be monitored for delayed symptoms for up to 48 hours.

Red flag symptoms

- In some cases, a player may show signs or symptoms that potentially indicate a more severe head or spine injury, including loss of consciousness, convulsions, worsening headaches, repeated vomiting or neck pain (**see a detailed list in the CRT 6**).
- **If a player demonstrates any red flags**, a more severe head or spine injury should be suspected, principles of first aid should be followed and emergency medical assessment should be pursued.

2

CAN A COACH DIAGNOSE A CONCUSSION?

No, a coach is not qualified to diagnose a concussion. However, coaches do have a responsibility to recognize when a player is exhibiting the signs and/or symptoms of a concussion. In addition to nurse practitioners, medical doctors that are qualified to evaluate patients with a suspected concussion include:

- Pediatricians;
- Family medicine physicians;
- Sport medicine physicians;
- Emergency department physicians;
- Internal medicine physicians;
- Rehabilitation physicians (physiatrists);
- Neurologists; and
- Neurosurgeons

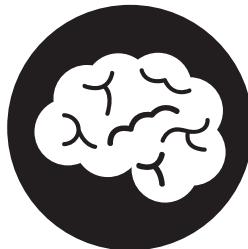


In geographic regions of Canada with limited access to medical doctors (i.e. rural, remote or northern communities), a licensed healthcare professional (i.e. nurse) with pre-arranged access to a medical doctor or nurse practitioner can facilitate this role.

***Note:** In Manitoba, physician assistants can diagnose concussion, In Québec, nurse practitioners cannot diagnose concussion. The role of physiotherapists in the assessment and management of concussion is specified.

3

HOW ARE CONCUSSIONS TREATED?



General recommendations for concussion recovery include a short period of relative rest (24 to 48 hours), followed by a gradual return to activity under the supervision of a medical professional. Caring for a concussion can involve a variety of treatments to manage symptoms and a team of health professions, depending on the symptoms and how a person's condition improves.

Players diagnosed with a concussion should be provided with education about the signs and symptoms of concussion, strategies about how to manage their symptoms, the risks of returning to sport without medical clearance and recommendations regarding gradual return to school and sport activities. Players diagnosed with a concussion are to be managed according to their Return-to-School/Work and Sport-Specific-Return-to-Sport Strategy. When available, players should be encouraged to work with the team athletic therapist or physiotherapist to optimize progression through their Sport-Specific Return-to-Sport Strategy.

4

WHAT SHOULD I DO IF I SUSPECT A CONCUSSION?

AS A PLAYER

If you as a player received a blow to the head, face, neck or elsewhere on your body or are experiencing any of the concussion symptoms you should stop practicing or playing and immediately notify your coach, trainer, teacher or parent/caregiver.

AS A COACH

If you suspect a player may have suffered a concussion during a game or practice, remove the player from play and consult your Concussion Action Plan for next steps.

AS A PARENT/CAREGIVER

If you suspect a concussion in your child or another player notify a coach, teacher, trainer or the other player's parent/caregiver immediately.

If your child is demonstrating visual signs of a concussion or experiencing concussion symptoms, suspect a concussion and have your child assessed by a medical doctor or nurse practitioner.

AS A TEAMMATE

If you see one of your teammates receive a blow to the head, face, neck or elsewhere on their body, if they are acting peculiarly, showing visual signs of a concussion as outlined in the WPC Pre-Season Concussion Education Fact Sheet, or if they inform you that they are experiencing one of the symptoms commonly associated with a concussion you should inform your coach or trainer immediately.

AS AN OFFICIAL

If a player receives a blow to the head, face, neck or elsewhere on their body and is exhibiting any of the visual signs associated with concussions during a game, a referee can stop the game for a period of 3 minutes. During this time the coaches are able to assess the injured player. This rule is located under WP 17.3 of the World Aquatics Competition Regulations July 2023 which states that, "If accident, injury or illness, other than bleeding, occurs, a referee may at the referee's discretion suspend the game for not more than three minutes, in which case the referee shall instruct the timekeeper as to when the stoppage period is to commence." (p.352)

In addition, the referee cannot allow an injured athlete to re-enter the field of play as explained under WP 17.5 of the World Aquatics Competition Regulations July 2023 which states that, "Except in the circumstances of VI.17.2 (bleeding), the player shall not be allowed to take further part in the game if a substitute has entered." (p.352)

5

WHEN SHOULD THE ATHLETE SEE A DOCTOR?



If a player has a suspected concussion, they should be immediately removed from the field of play and checked out by a licensed healthcare professional as soon as possible.

If a licensed healthcare professional is present when the injury occurs, the player should be taken to a quiet area and undergo Sideline Medical Assessment using the **Sport Concussion Assessment Tool 6 (SCAT6)** or the **Child SCAT6**. The **SCAT6** and **Child SCAT6** are clinical tools that should only be used by a licensed healthcare professional that has training and experience using these tools.

If there is no licensed healthcare professional present, the player should be referred immediately for medical assessment by a medical doctor or nurse practitioner, and the player must not return to play until receiving medical clearance.

If a player loses consciousness during a practice or gameplay or exhibits any of the other "Red flag" symptoms, they should be transported to a hospital immediately. Red flag symptoms include:

- Neck pain or tenderness
- Vomiting more than once
- Growing confusion
- Seizures or convulsions
- Weakness or tingling in their arms or legs
- Increasingly restless, agitated or combative behaviour
- Double vision
- Severe or increasing headache
- Deteriorating conscious state or loss of consciousness
- If there is loss of consciousness, initiate the Emergency Action Plan and call an ambulance.

***Note:** If the player is unconscious or you suspect a neck injury, continue to monitor airway, breathing and circulation. Do not attempt to move the player or remove any equipment.

6

WHAT TYPE OF INFORMATION SHOULD BE PROVIDED TO THE DOCTOR?

WPC has created a Personal Concussion Record for Players sheet for our Registrants to use during their Return-to-School/Work and Return-to-Sport journey. The information included on this sheet will be useful in providing an overview of the player's concussion and concussion history, which doctors may find useful. However, it is not a legal medical document and as such should be used solely as a tool for players and parents/caregivers to use and refer to throughout the Return-to-School/Work and Return-to-Sport period and in the future. Using the Personal Concussion Record for Players is highly recommended and a simple method to ensure that the same information is provided to the player's doctor, coaches, teachers, trainers and additional support staff.

7

HOW LONG DOES IT TAKE FOR A CONCUSSION TO HEAL?

Most players who sustain a concussion while participating in sport will make a complete recovery and be able to return to full school without any concussion-related accommodations and full sport participation without restrictions within four weeks of injury. However, approximately 15 to 30 per cent of individuals will experience symptoms that last longer beyond this time frame.

Players who experience persisting symptoms (longer than four weeks) may benefit from referral to specialized interdisciplinary concussion care for assessment and care that addresses the player's individual symptoms and needs.

Care of persisting symptoms should follow the management recommendations in Canada's clinical practice guidelines:

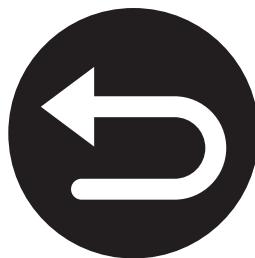
- Pediatric guidelines (children and youth under 18)
- Adult guidelines (18 and older)

***Note:** For those Registrants interested in locating a medical professional who possesses experience within the area of concussions, you may find the following website to be helpful:
<https://casem-acmse.org/public-directory/find-a-sport-medicine-doctor>

8

WHAT HAPPENS WHEN A PLAYER RETURNS TOO QUICKLY TO SPORT, SCHOOL OR WORK?

It is important that players, coaches, trainers and officials take the necessary time to heal when they have been diagnosed with a concussion. Concussions affect each individual differently and returning too quickly to sport, school or work can negatively impact recovery. Going back to activities before you are ready can significantly exacerbate symptoms, your recovery may take longer, and returning to active play before full recovery also puts you at higher risk of sustaining another concussion.



There is also the possibility, although minimal, that a player who returns too quickly to sport can be diagnosed with Second Impact Syndrome (SIS). SIS is a swelling of the brain that can occur when a player sustains a second head injury before a previous head injury has healed. Although rare, SIS can lead to permanent injury and death.

9

CAN A CONCUSSION BE CLASSIFIED AS SEVERE OR MILD?



No, concussions cannot be classified as severe or mild. There is no recognized system for classifying concussions. The full extent of the consequences of a concussion are difficult to predict at the outset and may change over time. Each concussion should be taken seriously and anyone who sustains a concussion should carefully follow step-wise return-to-school/work and return-to-sport strategies to support a safe and healthy recovery.

10

HOW CAN TEAMMATES OF A PLAYER WHO IS SUFFERING FROM A CONCUSSION HELP THEM FEEL INCLUDED?

Players who are suffering from a concussion may find it difficult, at times, to feel included on their sport team. It is important that the player's teammates are aware of this and endeavor to increase the player's inclusion in team activities while respecting the restrictions that accompany their stage of concussion recovery. One method of increasing feelings of inclusion would be for the player's teammates to spend time with or communicate with the injured player. However, large gatherings may cause the symptoms of the player suffering from a concussion to worsen due to the amount of noise and the high level of concentration required. Therefore, individual support from teammates is preferred.



Teammates may also support the player by demonstrating empathy and understanding that, even though you can't see it, a concussion is a brain injury, which takes adequate time to recover safely. Often, players may want to return to sport before they are ready or fully recovered. Teammates should encourage the concussed player to take the time they need to recover and be there to support them through their recovery process.

11

SHOULD AN ATHLETE TAKE MEDICATION TO HELP WITH THEIR SYMPTOMS IF THEY MAY HAVE A SUSPECTED CONCUSSION (I.E. ACETAMINOPHEN FOR A HEADACHE)?



Players removed from play due to a suspected concussion should not ingest or be given any type of medication, unless it is essential (e.g. insulin for diabetes). Any player with a suspected concussion should see a medical doctor as soon as possible. Their doctor will provide further guidance on medication use during recovery.

1

WHY ARE PRE-SEASON CONCUSSION EDUCATION MEETINGS IMPORTANT?

Despite recent increased attention focusing on concussion, there is a continued need to improve concussion education and awareness. Optimizing the prevention and management of concussion depends highly on annual education of all stakeholders (players, parents, coaches, officials, teachers, trainers and integrated support staff) on current evidence-based approaches that can prevent concussion and more serious forms of head injury and help identify and manage a player with a suspected concussion. The Pre-Season Concussion Education Meetings are extremely important in ensuring that water polo clubs across Canada are aligned in the WPC safe sport pillar of concussion prevention and management.

2

IF A PLAYER WEARS A MOUTHGUARD AND/OR A GOALIE PRACTICE HELMET, CAN THEY STILL RECEIVE A CONCUSSION?

While mouthguards and helmets are encouraged, they do not prevent concussions. Currently, there is limited research into mechanisms of concussion in water polo, and as such, there is no proof to support the notion that specific equipment worn by water polo players can prevent a concussion. Recent evidence shows mouthguards may reduce rates of concussion. Wearing proper equipment is important for other reasons: mouthguards can help protect the teeth from direct impact, and goalie practice helmets may help protect the skull or prevent other head injuries. But a player can still receive a concussion while wearing a mouthguard and/or goalie practice helmet, as a very rapid movement of the head with or without physical contact is often sufficient to cause a concussion.

3

WHAT SHOULD STAKEHOLDERS, PARTICULARLY COACHES, PLAYERS AND PARENTS/CAREGIVERS, DO DURING THE SEASON TO HELP PREVENT AND MANAGE CONCUSSIONS?

PLAYERS

- Use the tips to prevent concussions and other injuries sheet to ensure that you and your teammates are practicing awareness and safety in all practices and games.
- If you or your teammate is experiencing concussion symptoms, notify a coach, trainer, teacher or parent/caregiver immediately.
- Ensure that prior to returning to full contact practice and game, you provide a signed Medical Clearance Letter to your coach.
- Follow the proper stage sequencing of the Return-to-School/Work and Return-to-Sport strategies and identify whether you are experiencing any worsening of symptoms that is beyond mild and brief. If symptoms worsen more than this, you should stop the activity and try resuming the next day at the same step.

PARENTS/CAREGIVERS

- If you suspect a concussion in your child or another player notify a coach, trainer, teacher or their parent/caregiver immediately.
- Ensure that your child is following the proper stage sequencing of the Return-to-School/Work and Return-to-Sport strategies.
- Be aware of your child's team's/club's Concussion Action Plan

COACHES

- Use the tips to prevent concussions and other injuries sheet to help plan safe practices for your team.
- Ensure that you are aware of your Concussion Action Plan during practices and games and if there are any differences based on pool facilities.
- If you suspect a player may have suffered a concussion during a game or practice, remove the player from play and consult your Concussion Action Plan for next steps.
- Create an emergency contact sheet with parent/caregiver contact information for each player on your team in the event you need to contact them.
- Ensure that you have the CRT6 in an easily accessible location for when you need to reference the information to help identify a potential concussion.
- Ensure that any player diagnosed with a concussion is following the proper Return-to-Sport sequencing.
- Ensure that prior to a player returning to full contact practice and games that you receive a signed Medical Clearance Letter from the the player's medical doctor or nurse practitioner.

1

WHAT IS WPC DOING TO PREVENT AND MANAGE CONCUSSIONS?

Safe sport is a crucial element within Canadian sport and WPC recognizes the importance of providing our members with the proper education tools, resources, policies and protocols to address this area. Concussion prevention and management is one of WPC's safe sport pillars and as such, WPC has established the Concussion Expert Advisory Committee to provide support and guidance to WPC within this area. The Institut National du sport du Québec (INS Québec) in collaboration with WPC has developed WPC's Concussion Protocol which is based on the latest evidence, developed with concussion experts and supported by Sport Canada. WPC is committed to promoting concussion awareness, prevention and management. The organization has and will continue to work diligently within the safe sport category of concussions moving forward. This Concussion Education Toolkit is the first step to ensuring a safer, more conscientious sport environment for our stakeholders.



2

IS THE NCL IMPLEMENTING ANY SPECIALIZED CONCUSSION PROCEDURES?

WPC's focus is to provide our members with crucial concussion education resources as a means of developing their concussion awareness, prevention and management techniques. Education is a vital element in concussion prevention and management. In order for the National Championship League (NCL) to be successful, it is imperative that our members understand their responsibilities in relation to the area of concussions within safe sport.

In addition, WPC requires all NCL coaches, officials, delegates, volunteers with direct player contact and players 16 years of age or older to complete the NCCP Making Head Way in Sport e-module.



1

HOW IS ROWAN'S LAW BEING ADDRESSED FOR ONTARIO RESIDENTS?

In Ontario, Rowan's Law is a mandatory legislation that sport organizations must adhere to and it addresses the prevention and management of concussions. As a result of this legislation, Ontario Water Polo (OWP) requires that each water polo registrant who resides in Ontario and is under the age of 26 to sign their Concussion Code of Conduct and provide annual verification that the Government of Ontario concussion awareness resources have been reviewed. In addition, coaches, officials and trainers of teams, which include players who are under the age of 26, must also complete these tasks.

For more information about Rowan's Law, please visit the following website: Ontario.ca/concussions



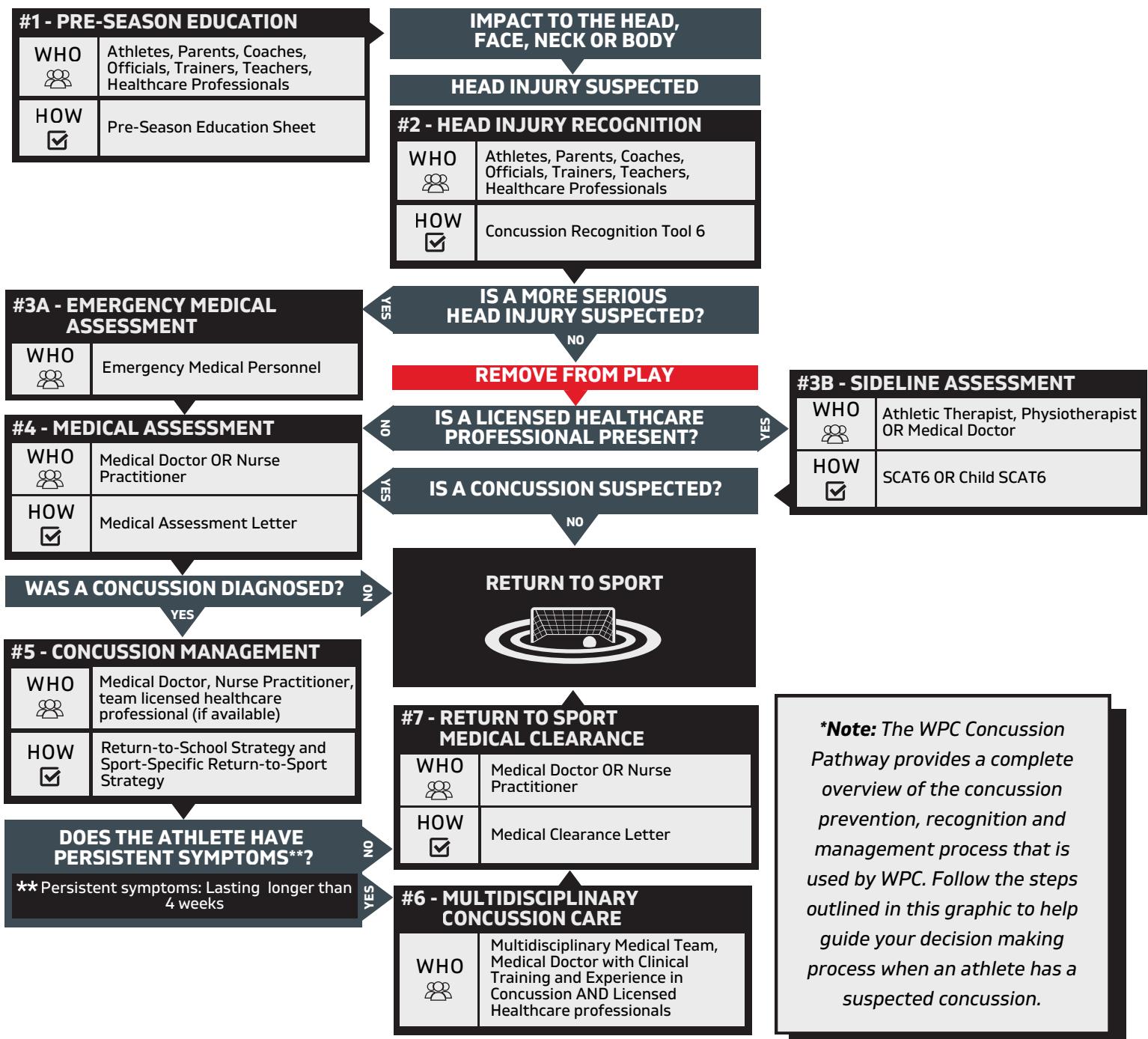
PROVINCIAL
SPECIFIC
S

REFERENCES

1. Institut National du sport du Québec & Water Polo Canada. (n.d.). *Water Polo Canada Concussion Protocol*. Water Polo Canada.
2. Parachute. (n.d.). *Pre-season concussion education checklist*.
<https://parachute.ca/wp-content/uploads/2019/08/Smart-Hockey-Pre-Season-Concussion-Education-Checklist.pdf>
3. Parachute. (n.d.). *Pre-season concussion education team meeting guide*.
<https://parachute.ca/wp-content/uploads/2019/08/Smart-Hockey-Pre-Season-Concussion-Education-Team-Meeting-Guide.pdf>
4. Parachute. (n.d.). *Smart Hockey online guide*.
<https://parachute.ca/wp-content/uploads/2019/08/Smart-Hockey-Online-Guide.pdf>
5. World Aquatics. (2023, July 5). *COMPETITION REGULATIONS - PART SIX: WATER POLO RULES*. Water Polo Canada.
https://resources.fina.org/fina/document/2023/08/30/cf0cc0aa-801c-4488-a51b-e8587cccf4cc/World-Aquatics_Competition-regulations_5th-July-2023_Final_1.0.1.pdf

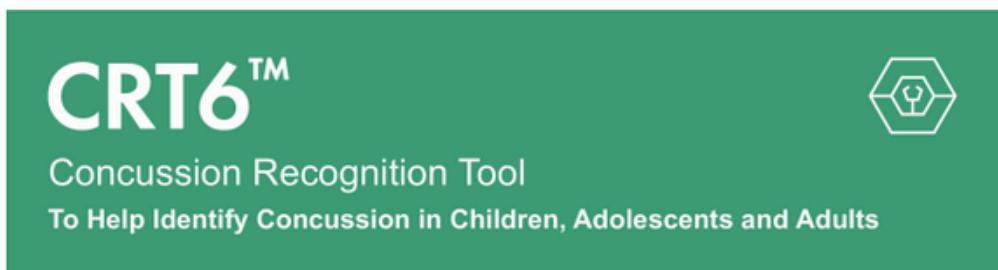
APPENDIX A:

WPC CONCUSSION PATHWAY



***Note:** The WPC Concussion Pathway provides a complete overview of the concussion prevention, recognition and management process that is used by WPC. Follow the steps outlined in this graphic to help guide your decision making process when an athlete has a suspected concussion.

APPENDIX B - CRT 6 CONCUSSION RECOGNITION TOOL



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.

This tool may be freely copied in its current form for distribution to individuals, teams, groups, and organizations. Any alteration (including translations and digital re-formatting), re-branding, or sale for commercial gain is not permissible without the expressed written consent of BMJ.

CRT6™

Developed by: The Concussion in Sport Group (CISG)

Supported by:





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	Changes in Emotions
Headache	More emotional
"Pressure in head"	More irritable
Balance problems	Sadness
Nausea or vomiting	Nervous or anxious
Drowsiness	
Dizziness	
Blurred vision	
More sensitive to light	
More sensitive to noise	
Fatigue or low energy	
"Don't feel right"	
Neck Pain	

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