

SKATE CANADA CONCUSSION PROTOCOL

Adapted from: Parachute. (2017). Canadian Guideline on Concussion in Sport. www.parachutecanada.org/quideline

Skate Canada has developed the **Skate Canada Concussion Protocol** to help guide the management of individuals who may have a suspected concussion as a result of participation in **Skate Canada** activities.

Purpose

This protocol covers the recognition, medical diagnosis, and management of **SKATE CANADA REGISTRANTS AND MEMBERS** who may sustain a suspected concussion during a sport activity. It aims to ensure that individuals with a suspected concussion receive timely and appropriate care and proper management to allow them to return back to their sport safely. This protocol may not address every possible clinical scenario that can occur during sport-related activities but includes critical elements based on the latest evidence and current expert consensus.

Who should use this protocol?

This protocol is intended for use by all individuals inside and outside the context of school and non-school based organized sports activity, including athletes, parents, coaches, officials, referees, volunteers, teachers, trainers, and licensed healthcare professionals.

For a summary of the **Skate Canada Concussion Protocol** please refer to the **Skate Canada Sport Concussion Pathway**.

1. Pre-Season Education

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 sport stakeholders (athletes, parents, coaches, officials, referees, volunteers, teachers, trainers, licensed healthcare professionals) on current evidence-informed approaches that can prevent concussion and more serious forms of head injury and help identify and manage an individual with a suspected concussion.

Concussion education should include information on:

- the definition of concussion,
- possible mechanisms of injury,
- common signs and symptoms,
- steps that can be taken to prevent concussions and other injuries from occurring in sport.
- what to do when an individual has suffered 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, and
- Return to sport medical clearance requirements
- Who: Athletes, parents, coaches, officials, referees, volunteers, and trainers, licensed healthcare professionals
- How: Pre-season Concussion Education Sheet

All parents, coaches and athletes should receive and review the *Pre-season Concussion Education Sheet* prior to the first practice of the season. In addition to reviewing information on concussion, it is also important that all sport stakeholders have a clear understanding of the **Skate Canada Concussion Protocol.** For example, this can be accomplished through pre-season in-person orientation sessions for athletes, parents, and other sport stakeholders by a Skate Canada Professional Coach, club board member or a skating school administrator.

2. Head Injury Recognition

Although the formal diagnosis of concussion should be made following a medical assessment, all sport stakeholders including athletes, parents, coaches, volunteers, officials, referees, and licensed healthcare professionals are responsible for the recognition and reporting of individuals who may demonstrate visual signs of a head injury or who report concussion-related symptoms. This is particularly important because many sport and recreation venues will not have access to on-site licensed healthcare professionals.

A concussion should be suspected:

- in any individual who sustains a significant impact to the head, face, neck, or body and demonstrates ANY of the visual signs of a suspected concussion or reports ANY symptoms of a suspected concussion as detailed in the Skate Canada Concussion Recognition Tool.
- if an individual reports ANY concussion symptoms to one of their peers, parents, volunteers, officials, referees, or coaches or if anyone witnesses an individual exhibiting any of the visual signs of concussion.

In some cases, an individual may demonstrate signs or symptoms of a more severe head or spine injury including convulsions, worsening headaches, vomiting or neck pain. If an individual demonstrates any of the 'Red Flags' indicated by the *Skate Canada Concussion Recognition Tool*, a more severe head or spine injury should be suspected, and an Emergency Medical Assessment should be pursued.

- ► **Who**: Athletes, parents, coaches, officials, referees, volunteers, trainers, and licensed healthcare professionals
- How: Skate Canada Concussion Recognition Tool

3. Onsite Medical Assessment

Depending on the suspected severity of the injury, an initial assessment may be completed by emergency medical professionals or by an on-site licensed healthcare professional where available.

In cases where an individual loses consciousness, or it is suspected an individual might have a more severe head or spine injury, an Emergency Medical Assessment by emergency medical professionals should take place *(see 3a below)*.

If a more severe injury is not suspected, the individual should undergo a Sideline Medical Assessment (onsite) or Medical Assessment (in a medical clinic), depending on if there is a licensed healthcare professional present onsite or not, *(see 3b below)*.

3a. Emergency Medical Assessment

If an individual is suspected of sustaining a more severe head or spine injury during a skating lesson, practice, off-ice training, or competition, an ambulance should be called immediately to transfer the individual to the nearest emergency department for further Medical Assessment.

Coaches, parents, volunteers, trainers, referees and officials should not make any effort to remove equipment or move the individual until an ambulance has arrived and the individual should not be left alone until the ambulance arrives. After the emergency medical services staff has completed the Emergency Medical Assessment, the individual should be transferred to the nearest hospital for Medical Assessment. In the case of youth (under 18 years of age), the individual's parents should be contacted immediately to inform them of the individual's injury. For individual's over 18 years of age, their emergency contact person should be contacted if one has been provided

► Who: Emergency medical professionals

3b. Sideline Medical Assessment

If an individual is suspected of sustaining a concussion and there is no concern for a more serious head or spine injury, the individual should be immediately removed from the ice.

Scenario 1: If a licensed healthcare professional is present

The individual should be taken to a quiet area and undergo Sideline Medical Assessment using the Sport Concussion Assessment Tool 5 (SCAT5) or the Child SCAT5. The SCAT5 and Child SCAT5 are clinical tools that should only be used by a licensed healthcare professional that has experience using these tools. It is important to note that the results of SCAT5 and Child SCAT5 testing can be normal in the setting of acute concussion. As such, these tools can be used by licensed healthcare professionals to document initial neurological status but should not be used to make sideline return-to-sport decisions in youth. Any youth who is suspected of having sustained a concussion MUST NOT-return to skate/train/coach and must be referred for Medical Assessment.

If a youth is removed from skating/training/coaching following a significant impact and has undergone an assessment by a physician or nurse practitioner with experience in concussion management, but there are NO visual signs of a concussion and the individual reports NO concussion symptoms then with the approval of the physician or nurse practitioner with experience in concussion management, the individual can return to skate/train/coach but should be monitored for delayed symptoms.

In the case of national team-affiliated athletes competing at an event, an experienced certified athletic therapist, physiotherapist or medical doctor providing medical coverage for the sporting event may make the determination that a concussion has not occurred based on the results of the Sideline Medical Assessment. In these cases, the athlete may be returned to skate/train without a *Medical Clearance Letter* but this should be clearly communicated to the coaching staff. Athletes that have been cleared to return to skate/train should be monitored for delayed symptoms. If the athlete develops any delayed symptoms the athlete should be removed from skating/training and undergo medical assessment by a medical doctor or nurse practitioner with experience in concussion management.

Scenario 2: If there is no licensed healthcare professional present

The individual should be referred immediately for medical assessment by a medical doctor or nurse practitioner with experience in concussion management, and the individual must not return to skate/train/coach until they receive medical clearance.

Who: Athletic therapists, physiotherapists, medical doctor, nurse practitioners

► **How**: <u>Sport Concussion Assessment Tool 5 (SCAT5)</u>, <u>Child Sport Concussion Assessment Tool 5 (Child SCAT5)</u>

4. Medical Assessment

In order to provide comprehensive evaluation of individuals with a suspected concussion, the medical assessment must rule out more serious forms of traumatic brain and spine injuries, must rule out medical and neurological conditions that can present with concussion-like symptoms, and must make the diagnosis of concussion based on findings of the clinical history and physical examination and the evidence-based use of adjunctive tests as indicated (e.g. imaging...). In addition to nurse practitioners with experience in concussion management, medical doctors¹ that are qualified to evaluate patients with a suspected concussion include: pediatricians; family medicine, sports medicine, emergency department, internal medicine, and rehabilitation (physiatrists) physicians; neurologists; and neurosurgeons.

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

¹ Medical doctors and nurse practitioners are the only healthcare professionals in Canada with licensed training and expertise to meet these needs; therefore all athletes with a suspected concussion should undergo evaluation by one of these professionals.

this role. The medical assessment is responsible for determining whether the individual has been diagnosed with a concussion or not. Individuals with a diagnosed concussion should be provided with a *Medical Assessment Letter* indicating a concussion has been diagnosed. Individuals that are determined to have not sustained a concussion must be provided with a *Medical Assessment Letter* indicating a concussion has not been diagnosed and the individual can return to skating/training/coaching activities without restriction.

Who: Medical doctor, nurse practitioner, nurse

How: Medical Assessment Letter

5. Concussion Management

When an individual has been diagnosed with a concussion, it is important that the individual's parent/legal guardian is informed. All individuals diagnosed with a concussion must be provided with a standardized *Medical Assessment Letter* that notifies the individual and their parents/legal guardians/spouse that they have been diagnosed with a concussion and may not return to any activities with a risk of concussion until medically cleared to do so by a medical doctor or nurse practitioner with experience in concussion management. Because the *Medical Assessment Letter* contains personal health information, it is the responsibility of the individual or their parent/legal guardian to provide this documentation to the individual's coaches, skating club board of directors or skating school administrators.

Individuals 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 a gradual return to school and sport activities. Individuals diagnosed with a concussion are to be managed according to *Skate Canada's Return-to Sport Strategy....* **UNDER THE SUPERVISION** of a medical doctor or nurse practitioner with experience in concussion management. When available, individuals should be encouraged to work with the team athletic therapist or physiotherapist to optimize progression through *The Skate Canada Return-to-Sport Strategy*. Once the individual has completed *The Skate Canada Return-to-Sport Strategy* and are deemed to be clinically recovered from their concussion, the medical doctor or nurse practitioner with experience in concussion management can consider the individual for a return to full sports activities and issue a *Medical Clearance Letter*.

The stepwise progressions for *The Skate Canada Return-to-Sport Strategies* are outlined below. As indicated in stage 1 of *the Skate Canada Return-to-Sport Strategy*, reintroduction of daily, school, and work activities using the *Return-to-School Strategy* **MUST PRECEDE** return to sport participation.

Return-to-Learn/School/Coaching Strategy

The following is an outline of the *Return-to-Learn/School/Coaching Strategy* that should be used to help student-athletes/coaches, parents, and teachers to collaborate in allowing the individual to make a gradual return to school activities. Depending on the severity and type of the symptoms present individual will progress through the following stages at different rates. If the individual experiences new symptoms or worsening symptoms at any stage, they should go back to the previous stage. The individual should also be encouraged to ask their school if they have a school-specific Return-to-Learn Program in place to help them make a gradual return to school.

Stage	Aim	Activity	Goal of each step
1	Daily activities at home that do not give the individual symptoms	Typical activities during the day as long as they do not increase symptoms (i.e. reading, texting, screen time). Start at 5-15 minutes at a time and gradually build up.	Gradual return to typical activities
2	Learn/School/Coaching activities	Learn/School: Homework, reading or other cognitive activities outside of the classroom. Coaching: Reading or other cognitive activities off the ice	Increase tolerance to cognitive work
3	Return to Learn/School /Coaching part-time	Learn/School: Gradual introduction of schoolwork. May need to start with a partial learn/school day or with increased breaks during the day. Coaching: gradual return to work – may need to start with a partial work day and should remain off the ice	Increase academic/coaching activities
4	Return to Learn/School/Coaching full-time	Learn/School: Gradually progress Coaching: Gradual progress to coaching, first remaining off the ice, then progressing to on - ice; Should start progression from stage 2 to6 of the Skate Canada Specific Return to Sport Strategy for coaches as tolerated.	Return to full academic activities and catch up on missed school work

Source: McCrory et al. (2017). Consensus statement on concussion in sport – the 5th international conference on concussion in sport held in Berlin, October 2016. *British Journal of Sports Medicine*, 51(11), 838-847.

Skate Canada Return-to-Sport Strategy

The following is an outline of the Skate Canada Return-to-Sport Strategy that should be used to help athletes, coaches, trainers and medical professionals partner in allowing the individual to make a gradual return to sport activities.

An initial period of 24-48 hours of rest is recommended before starting the *Skating-Specific Return-to-Sport Strategy*. The individual should spend a minimum duration of 24 hours without symptom increases at each stage before progressing to the next one. If the individual experiences new symptoms or worsening symptoms at any stage, they should go back to the previous stage. It is important that individuals **RETURN TO FULL-TIME LEARN/SCHOOL/COACHING ACTIVITIES** before progressing to stage 5 and 6 of the Skate Canada Return-to-Sport Strategy. It is also important that

all individuals provide their coach, skating club board of directors or skating school administrators with a *Medical Clearance Letter* prior to returning to full contact sport activities.

Skate Canada Specific Return-to-Sport Strategy for SINGLES

Stage	Aim	Activity	Goal of each step
1	Symptom-limiting	Daily activities that do not provoke	Gradual re-introduction
	activity	symptoms	of work/school activities
2	Light aerobic activity	Cardio-vascular testing if available to establish the basic heart rate (HR), where the symptoms appear. If not possible: • Medium pace walking without	Increase heart rate Regain normal heart rate variability.
		 symptoms (HR 100-130) Light intensity stationary cycling or jogging for 15-20 minutes at subsymptom threshold intensity No resistance training. 	
3	Sport-specific exercise	Running or skating drills. No head impact activities.	Add movement No jumps, no spinning.
		Off-ice warm-up:sub-maximal with agility exercises.	Try to plan ice session with less skaters on the
			ice.
		On-Ice intervals:	
		 stroking, then turns (no twizzles) 	
		 5 x 3 minutes program parts without jumps or spins at 60-70% max heart rate (around 140), and rest until back to 50-55% max HR (around 80-100) 	
		Off-ice training (gym):	
		 under 80% of 1 maximal repetition (MR) 	
		 No jumps, avoid exercises with head below hips 	
		 Core, proprioception, stabilization & flexibility exercises 	
4	Non-contact training	Warm up:	Exercise, coordination
	drills	 Off-ice double jumps without symptoms (start with 5-10 reps) 	and increased thinking Avoid repetitive falls.
		 Agility with intervals, 8 x 30sec. 	Avoid session with a lot
		On-Ice training:	of skaters.
		1- Full programs with single jumps; no spins; 80-90% max HR (165-180)	

		Rest until back to 50-55% max HR (around 80-100)	
		Single and double jumps outside programs	
		No spins	
		If tolerated:	
		2- Complete programs with single and double jumps, but no spins	
		Mastered triple jumps outside programs	
		No spins	
		If tolerated:	
		3- Add more difficult triple jumps	
		4- No spins	
		Off ice training (gym):	
		 No more than 80% of 1 MR (maximal resistance); 	
		Add exercises with external resistance	
		 Avoid jumps in training if jumps being done during same day on-ice training 	
5	Full contact practice	Following medical clearance	Restore confidence and assess functional skills
		Warm-up	by coaching staff
		Same as previous to injury	
		On-ice training:	
		 Complete/full programs with all jumps but no spins 	
		Spins outside programs	
		If tolerated:	
		2. Progress to full programs	
		Off-ice training (gym):	
		Pre-injury strength & conditioning	
		 Limit jumping depending on how much was done on ice 	
6	Return to sport	Normal training, no restrictions	
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Skate Canada Specific Return-to-Sport Strategy for PAIRS/DANCE/SYNCHRONIZED SKATING

Stage	Aim	Activity	Goal of each step
1	Symptom-limiting activity	Daily activities that do not provoke symptoms	Gradual re-introduction of work/school activities
2	Light aerobic activity	Cardio-vascular testing if available to establish the basic HR where the symptoms appear If not possible: • Medium pace walking without symptoms (HR 100-130) • Light intensity stationary cycling or jogging for 15-20 minutes at subsymptom threshold intensity • No resistance training.	Increase heart rate. Regain normal heart rate variability.
3	Sport-specific exercise	Running or skating drills. No head impact activities. Off-ice warm-up: Sub-maximal with agility exercises. On-Ice intervals: Stroking, then turns (no twizzles, no lifts) Sx 3 minutes program parts without jumps, lifts, or spins at 60-70% max heart rate (around 140), and rest until back to 50-55% max HR (around 80-100) Off-ice training (gym): Under 80% of 1 maximal repetition (MR) No jumps or lifts, avoid exercises with head below hips Core, proprioception, stabilization & flexibility exercises	Add movement No jumps, no lifts, no spinning Try to plan ice session with less skaters on the ice.
4	Non-contact training drills	 Warm up: Off-ice double jumps without symptoms (start with 5-10 reps) Agility with intervals, 8 x 30sec. Off-ice lifts 	Exercise, coordination and increased thinking Avoid repetitive falls. Avoid session with a lot of skaters.

		On-Ice training:	
		1- Full programs with single jumps (including side by side jumps); no spins; 80-90% max HR (165-180)	
		Rest until back to 50-55% max HR (around 80-100)	
		Single and double jumps outside programs	
		Lifts outside of program;	
		No throw jumps	
		No Death Spiral	
		No spins	
		If tolerated	
		2- Complete programs with single and double jumps (including side by side) and lifts, but no spins	
		Mastered triple jumps and throw jumps outside programs	
		No spins	
		No Death Spirals	
		If tolerated:	
		3- Complete programs with lifts, triple side by side and double throws, no spin.	
		Death spirals and triple throws outside programs	
		No spins	
		Off ice training (gym):	
		 No more than 80% of 1 MR (maximal resistance); 	
		Add exercises with external resistance	
		 Avoid jumps in training if jumps being done during same day on-ice training 	
5	Full contact	Following medical clearance	Restore confidence and
	practice	Warm-up	assess functional skills by coaching staff
		Same as previous to injury	,
		On-ice training:	
		 Complete/full programs with all jumps, throws and death spirals, but no spins 	
		Spins outside programs	

		If tolerated:	
		2. Progress to full programs	
		Off-ice training (gym):	
		Pre-injury Strength & Conditioning	
		 Limit jumping depending on how much was done on ice 	
6	Return to sport	Normal game play	

Skate Canada Specific Return-to-Sport Strategy for COACHES

Stage	Aim	Activity	Goal of each step
1	Symptom-limiting	Daily activities that do not provoke	Gradual re-introduction
	activity	symptoms	of work/school activities
2	Light aerobic activity	Cardio-vascular testing if available to establish the basic heart rate (HR), where the symptoms appear. If not possible: • Medium pace walking without symptoms (HR 100-130) • Light intensity stationary cycling or jogging for 15-20 minutes at sub-	Increase heart rate Regain normal heart rate variability.
		symptom threshold intensityNo resistance training.	
3	Sport-specific exercise	Running or skating drills. No head impact activities.	Add movement No jumps, no spinning.
		On-Ice intervals:	
		Stroking, then turns (no twizzles)	
		 5 x 3 minutes at 60-70% max heart rate (around 140), and rest until back to 50-55% max HR (around 80-100) 	
		Off-ice training (gym):	
		 Under 80% of 1 maximal repetition (MR) 	
		No exercises with head below hips	
		 Core, proprioception, stabilization & flexibility exercises 	
4	Non-contact	On-Ice intervals:	Exercise, coordination
	training drills	 Stroking then turns; 80-90% max HR (165-180) 	and increased thinking Avoid repetitive falls.
		 Rest until back to 50-55% max HR (around 80-100) 	

		 Single and double jumps No spins If tolerated: Mastered triple jumps outside programs No spins If tolerated: Add more difficult triple jumps Off ice training (gym): 	
		 No more than 80% of 1 MR (maximal resistance); Add exercises with external resistance 	
5	Full contact practice	Following medical clearance Warm-up Same as previous to injury On-ice training: • Jumps • Reintroduce spins If tolerated:	Restore confidence
		 Progress to full coaching session physically Off-ice training (gym): 	
		 Pre-injury Strength & Conditioning Limit jumping depending on how much was done on ice 	
6	Return to sport	Normal training, no restrictions	

► Who: Medical doctor, nurse practitioner and team athletic therapist or physiotherapist (where available)

How: Return-to-Learn/School/Coaching Strategy, Skate Canada Return-to Sport Strategy, Medical Assessment Letter

6. Multidisciplinary Concussion Care

Most individuals who sustain a concussion while participating in sport will make a complete recovery and be able to return to full school and sport activities within 1-4 weeks of injury. However, approximately 15-30% of individuals will experience symptoms that persist beyond this time frame. If available, individuals who experience persistent post-concussion symptoms (>4 weeks for youth, >2 weeks for adult) may benefit from referral to a physician-supervised

multidisciplinary concussion clinic that has access to professionals with licensed training in traumatic brain injury that may include experts in sport medicine, neuropsychology, physiotherapy, occupational therapy, neurology, neurosurgery, and rehabilitation medicine.

Referral to a multidisciplinary clinic for assessment should be made on an individualized basis at the discretion of an individual's medical doctor or nurse practitioner. If access to a multidisciplinary concussion clinic is not available, a referral to a medical doctor with clinical training and expertise in concussion (e.g. a sport medicine physician, neurologist, or rehabilitation medicine physician) should be considered for the purposes of developing an individualized treatment plan. Depending on the clinical presentation of the individual, this treatment plan may involve a variety of health care professionals with areas of expertise that address the specific needs of the individual based on the assessment findings.

Who: Multidisciplinary medical team, medical doctor with clinical training and expertise in concussion (e.g. a sports medicine physician, neurologist, or rehabilitation medicine physician), nurse practitioner, licensed healthcare professionals

7. Return to Sport

Individuals who have been determined to have not sustained a concussion and those that have been diagnosed with a concussion and have successfully completed the Skate Canada *Return-to-Sport Strategy* can be considered for return to full sports activities. The final decision to medically clear an individual to return to skating/training/coaching activities should be based on the clinical judgment of the medical doctor or nurse practitioner with experience in concussion management taking into account the individual'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).

Prior to returning to skating/training/coaching, each individual that has been diagnosed with a concussion must provide their coach, club board of directors or skating school administrators with a standardized *Medical Clearance Letter* that specifies that a medical doctor or nurse practitioner with experience in concussion management has personally evaluated the individual and has cleared them to return to skate/train/coach. In geographic regions of Canada with limited access to medical doctors (i.e. rural or northern communities), a licensed healthcare professional (such as a nurse) with pre-arranged access to a medical doctor or nurse practitioner with experience in concussion management can provide this documentation.

Individuals who have been provided with a *Medical Clearance Letter* may return to skate/train/coach activities as tolerated. If the individual experiences any new concussion-like symptoms while returning to skate/train/coach, they should be instructed to stop immediately, notify their parents, coaches, volunteers, referees or officials, and undergo a follow-up *Medical Assessment*. In the event that the individual sustains a new suspected concussion, the **Skate Canada Concussion Protocol** should be followed once again, as already outlined in this document.

Who: Medical doctor, nurse practitioner

How: Medical Clearance Letter