



**Holland Bloorview**  
Kids Rehabilitation Hospital

Concussion  
Centre

# TSA Concussion Webinar

*July 7<sup>th</sup>, 2021*

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# Welcome to the TSA concussion webinar

Chat will be used to share links and resources or to provide general comments. Please direct questions to other two features

Please submit your written questions throughout the webinar and we will answer during dedicated Q&A periods



If it's easier you can also ask your questions verbally during a Q&A period by raising your hand

# Introductions by Alan Gould

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# Outline

## TSA's Concussion Policy Outline:

1. Concussion 101 & Rowan's Law
2. Recognizing a suspected concussion
  - Q&A
3. Remove-from-sport protocol, report and refer
  - Q&A
4. Initial medical assessment and diagnosis
5. Recovery and clinical support
  - Q&A
6. Return-to-sport protocol and medical clearance for stage 5 & 6
  - Q&A

# About Holland Bloorview

- Holland Bloorview is Canada's largest kids rehabilitation hospital
- Specialize in youth concussion
- Clinicians specifically trained in pediatric brain injury and leading researchers in the field of youth concussion
- Focus on getting kids back to what they need, want and love to do



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# Our collaboration

- Holland Bloorview Kids Rehabilitation Hospital have partnered for 5 years to enhance youth soccer player safety on and off the field through the implementation of a integrated concussion strategy in youth soccer:
  - ✓ Education and Training
  - ✓ Research
  - ✓ Policy Creation
  - ✓ Policy Implementation and Protocols
  - ✓ Access to care

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# Rowan's Law (Bill 193)

Legislative  
Assembly  
of Ontario



Assemblée  
législative  
de l'Ontario

2ND SESSION, 41ST LEGISLATURE, ONTARIO  
67 ELIZABETH II, 2018

## Bill 193

*(Chapter 1 of the Statutes of Ontario, 2018)*

**An Act to enact Rowan's Law (Concussion Safety), 2018  
and to amend the Education Act**

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## Rowan's Law: Concussion Awareness Resources

[Review the Concussion Awareness Resources](#) (if you are an athlete, parent, coach, team trainer or official).

### Requirements for Sport Organizations

Ontario is a national leader in concussion management and prevention. *Rowan's Law (Concussion Safety)*, 2018 makes it **mandatory for sports organizations** to:

- 1 ensure that athletes under 26 years of age,\* parents of athletes under 18, coaches, team trainers and officials confirm every year that they have reviewed Ontario's Concussion Awareness Resources
- 2 establish a Concussion Code of Conduct that sets out rules of behaviour to support concussion prevention
- 3 establish a Removal-from-Sport and Return-to-Sport protocol

### Requirements for School Boards

The Ministry of Education has a [concussion policy \(PPM 158\)](#) for school boards, school authorities and provincial and demonstration schools. This policy is currently being updated by the Ministry of Education to be consistent with *Rowan's Law*. Until PPM 158 is reissued, schools and school boards are advised to continue to follow their existing concussion policy.



# Rowan's Law

As of January 2022 *Rowan's Law (Concussion Safety)* removal-from/return-to-sport requirements will come into effect. After this date, all children and youth under the age of 25 who participate in organized sport and sport within schools will be required to seek medical assessment for two mandatory touchpoints:

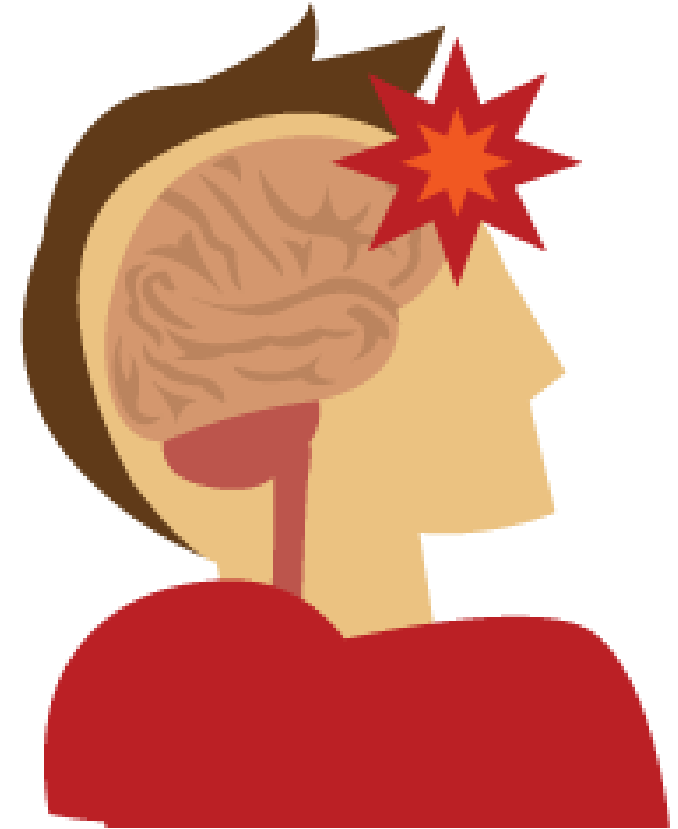
**Medical diagnosis:** All children and youth suspected of sustaining a concussion will require medical concussion assessment and diagnosis by a physician or nurse practitioner, with a letter which confirms positive or negative diagnosis.

**Medical clearance for unrestricted physical activity:** All children and youth diagnosed with concussion will require medical clearance by a physician or nurse practitioner, with a letter which confirms child or youth has met criteria to participate in unrestricted sport/physical activity participation.

# What is a concussion?

# What is a concussion?

- An injury to the brain
- Caused by blow to head or another part of the body
- “Traumatically induced physiological disruption of brain function”
- Causes non-specific onset of signs and symptoms (physical, cognitive, emotional, sleep)



ONF Living guidelines on diagnosing and managing pediatric concussion

# What is a concussion?

- **Every injury is different** - A person's experience with concussion and their recovery are individual and different with each injury.
- Symptoms may take up to **24-48 hours** to appear - some children/youth do not recognize symptoms until at school the following day
- Only need **1 symptom** to treat as a suspected concussion
- Concussions cannot be seen on a CT scan or MRI
- There is currently no biomarker test (i.e. blood test) which can identify concussions

Canadian Guideline for Concussion in Sport, 2017

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# Concussion signs and symptoms

## Physical Concussion Symptoms:

- Headache
- Sensitive to light
- Sensitive to noise
- Dizziness
- Nausea

## Examples of signs:

- Slow to get up after direct/indirect hit
- Balance/walking difficulties
- Uncoordinated/slow movements

Physical 

# Concussion signs and symptoms

## Cognitive Concussion Symptoms:

- Feeling mentally foggy
- Feeling slowed down
- Difficulty concentrating
- Difficulty remembering

## Example of signs:

- Disoriented or confused
- Difficulty responding to questions
- Blank or vacant look

Cognitive



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# Concussion signs and symptoms

## Emotional & Behavioural Concussion Symptoms:

- Irritability
- Sadness
- Nervous/anxious
- More emotional

## Example of signs:

- Abnormal behaviour for that child



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# Concussion signs and symptoms

## Sleep Concussion Symptoms:

- Drowsiness
- Sleeping more/less than usual
- Trouble falling asleep
- Fatigue

## Note:

- Important to monitor from a parent perspective



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# Red flag symptoms

**Figure 2: RED FLAG SYMPTOMS**

Headaches that worsen	Can't recognize people or places
Seizures or convulsion	Increasing confusion or irritability
Repeated vomiting	Weakness/tingling/burning in arms or legs
Loss of consciousness	Persistent or increasing neck pain
Looks very drowsy/can't be awakened	Unusual behavioural change
Slurred speech	Focal neurologic signs (e.g. paralysis, weakness, etc.)

**Initiate emergency action plan**

Canadian Guideline for Concussion in Sport, 2017

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# Soccer and Concussion

- **Player-to-player contact** is the most common cause of concussion in soccer for both genders (Koutures & Gregory, 2010)
- **Unplanned head impacts** are more likely to result in injury than planned one
- **Position most affected** are goalies and defensive midfield (Helmich, 2016)
- Recent evidence suggest no **conclusive** evidence that repetitive headers over time cause functional changes or adverse outcomes (Kountos et al, 2016)
  - More research is needed including variety of factors such as more accurately reporting frequency of headers in practices/games



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# Prevention

## Rule Changes

- Must enforce organizational rules and penalize dangerous plays (ie. elbowing while heading the ball)
- Correct age for heading, proper size and inflation of ball

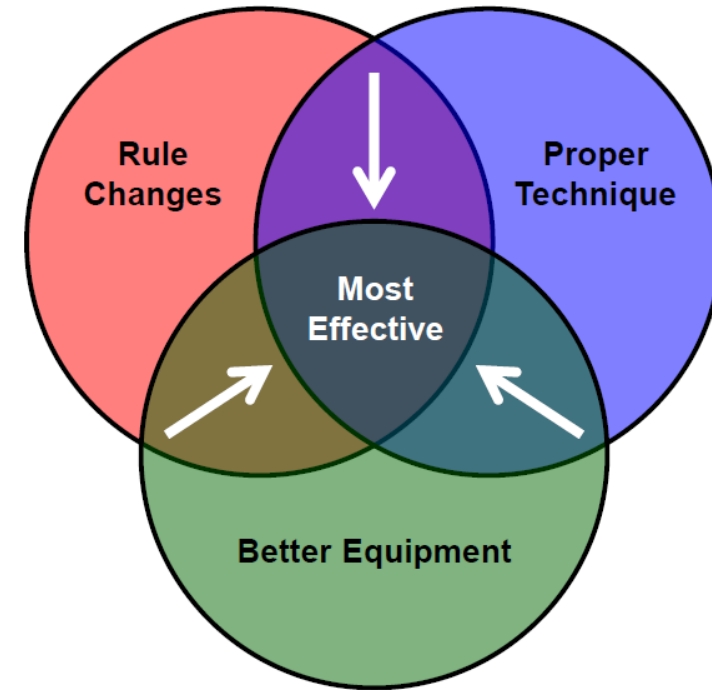
## Proper Technique

- Heading the ball (awareness of surroundings)
- Younger kids and females have weaker neck muscles
  - Could increase chance of concussion when heading
- Contracting of neck muscles and contacting ball at hairline of forehead

## Equipment

Headgear and mouth guards cannot fully protect athletes from having a concussion

### 3 Strategies:



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Concussion in Sport, 2017

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# Updates in best-practice – baseline testing

**Baseline testing on children/adolescents using concussion assessment tools or tests (or any combination of tests/tools) is not recommended or required for concussion diagnosis or management following an injury.**

- Baseline testing refers to the practice of having an athlete complete certain concussion assessment tools/tests prior to sports participation to provide baseline measurements that can be compared to post-injury values in the event of a suspected concussion.
- Current evidence does not support a significant added benefit of baseline testing athletes. This includes the Child SCAT5 and the SCAT5 tools, as well as neuropsychological and neurocognitive tests, both computerized or not.

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# Q&A

- ✓ Rowan's Law
- ✓ What is a concussion
- ✓ Concussion signs and symptoms
- ✓ Concussion prevention



# **Remove-from-sport protocol**

## **Recognizing, removing, reporting and referring**

# Recognition

**When should a concussion be suspected?** All players who experience any concussion reported signs and symptoms or visual/observation symptoms following a blow to the head or another part of the body is considered to have a suspected concussion and must stop participation in the TSA club sanctioned activity immediately. Symptoms of concussion typically appear immediately but may be delayed and evolve within the first 24-48 hours.

**What is considered a TSA club sanctioned activity?**

- Competing in TSA league or cup matches
- Ontario Soccer sanctioned competition
- Any team coach supervised training



# Recognition

## **3 ways** to recognize signs and symptoms of a suspected concussion:

1. Self-reported signs & symptoms
2. Observed signs & symptoms
3. Peer-reported signs & symptoms from child/youth, teachers, coaches and/or parents



# Recognition

**Figure 1: GENERAL CONCUSSION SYMPTOMS**

Headache	Feeling mentally foggy	Sensitive to light
Nausea	Feeling slowed down	Sensitive to noise
Dizziness	Difficulty concentrating	Irritability
Vomiting	Difficulty remembering	Sadness
Visual problems	Drowsiness	Nervous/anxious
Balance problems	Sleeping more/less than usual	More emotional
Numbness/tingling	Trouble falling asleep	Fatigue

**FIGURE 2: VISUAL/OBSERVABLE SIGNS**

Lying down motionless on the playing surface
Slow to get up after a direct or indirect hit
Disorientation or confusion, or inability to respond appropriately to questions
Blank or vacant look
Balance, gait difficulties motor incoordination, stumbling, slow labored movements
Facial injury after head trauma

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# Recognition

**Figure 2: RED FLAG SYMPTOMS**

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Slurred speech	Focal neurologic signs (e.g. paralysis, weakness, etc.)

**Initiate emergency action plan**

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# Remove-from-sport

- Any child/youth who experiences signs and symptoms of concussion following a blow to the head or body will be considered to have a **suspected concussion** and must stop participation in the sport activity **immediately**
- **Who is responsible for recognising a suspected concussion?** All team officials (head coach, assistant coach, trainer, manager, assistant manager, match officials or executive member) hold a responsibility to recognize the signs and symptoms of concussion, and report the suspected concussion to the head coach
- **Who is responsible for removal from play?** If a suspected concussion occurs, it is the responsibility of the head coach to remove players with a suspected concussion from participation in the soccer activity immediately.

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# Remove-from-sport

## Once removed the head coach must

1. Ensure player is monitored by another adult until a parent/guardian is contacted or on-site. Players with a suspected concussion should not be left alone. Older players should not drive themselves.
2. Complete a ***Suspected Concussion Report Form/Injury Report Form*** immediately after a concussion is suspected. *Head coaches must provide copies of the Suspected Concussion Report Form to:*
  - The individual's parents/guardian to bring to their medical appointment
  - The TSA office: [tsaleagues@torontosoccer.net](mailto:tsaleagues@torontosoccer.net) or FAX: 416-783-5194
3. Recommend to the players parent/guardian that they see a medical doctor or nurse practitioner as soon as possible for assessment

# Suspected concussion report form

## Suspected Concussion Report Form



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Player Name: \_\_\_\_\_ Player DOB: \_\_\_\_\_

Date & Time of Injury: \_\_\_\_\_ Club Name: \_\_\_\_\_

Division: \_\_\_\_\_ Level: \_\_\_\_\_ Game/Practice Location: \_\_\_\_\_ Sex: M F

Position during Injury (please circle): Defense Midfield Forward Goalie

**Injury Description:** Player to player contact ☐ Ball to player contact ☐ Fall to ground ☐ Other ☐

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# Suspected concussion report form

## Reported and Observable Symptoms (*Check all that apply*):

<input type="checkbox"/> Headache	<input type="checkbox"/> Feeling mentally foggy	<input type="checkbox"/> Sensitive to light
<input type="checkbox"/> Nausea	<input type="checkbox"/> Feeling slowed down	<input type="checkbox"/> Sensitive to noise
<input type="checkbox"/> Dizziness	<input type="checkbox"/> Difficulty concentrating	<input type="checkbox"/> Irritability
<input type="checkbox"/> Vomiting	<input type="checkbox"/> Difficulty remembering	<input type="checkbox"/> Sadness
<input type="checkbox"/> Visual problems	<input type="checkbox"/> Drowsiness	<input type="checkbox"/> Nervous/anxious
<input type="checkbox"/> Balance problems	<input type="checkbox"/> Sleeping more/less than usual	<input type="checkbox"/> More emotional
<input type="checkbox"/> Numbness/Tingling	<input type="checkbox"/> Trouble falling asleep	<input type="checkbox"/> Fatigue

## Red Flag Symptoms (*Check all that apply*): *Call 911 immediately with a sudden onset of any of these symptoms*

<input type="checkbox"/> Severe or increasing headache	<input type="checkbox"/> Neck pain or tenderness	<input type="checkbox"/> Seizure or convulsion
<input type="checkbox"/> Double vision	<input type="checkbox"/> Loss of consciousness	<input type="checkbox"/> Repeated vomiting
<input type="checkbox"/> Weakness or tingling/burning in arms/legs	<input type="checkbox"/> Deteriorating conscious state	<input type="checkbox"/> Increasingly restless, agitated or combative

# Suspected concussion report form

Are there any other observable/reported symptoms? ☐ Yes ☐ No

If yes, what: \_\_\_\_\_

Is there evidence of injury to anywhere else on body besides head? ☐ Yes ☐ No

If yes, where: \_\_\_\_\_

Has this player had a concussion before? ☐ Yes ☐ No ☐ Don't know ☐ Prefer not to answer

If yes, how many: \_\_\_\_\_

Does this player have any pre-existing medical conditions? ☐ Yes ☐ No ☐ Don't know ☐ Prefer not to answer

If yes, please list: \_\_\_\_\_

Does this player take any medication? ☐ Yes ☐ No ☐ Don't know ☐ Prefer not to answer

☐ If yes, please list: \_\_\_\_\_

# Suspected concussion report form

I [*name of coach completing this form*]: \_\_\_\_\_ recommended to the player's parent or guardian that the player sees a medical doctor/nurse practitioner immediately. This includes a family physician, pediatrician, sports-medicine physician, neurologist or internal medicine/rehabilitation (physiatrists).  
Documentation from any other source will not be acceptable.

Signature \_\_\_\_\_ Date: \_\_\_\_\_ Role: \_\_\_\_\_

Phone Number: \_\_\_\_\_ Email Address: \_\_\_\_\_

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# Suspected concussion report form

## Importance of suspected concussion report forms:

- **Catalyst:** Initiates the concussion policy process
- **Recording:** Record of the suspected injury
- **Communicating:** Consistent way of communicating suspected injuries to parents, head coaches and medical community
- **Surveillance:** Can support clubs/districts in injury data collection

# Refer to medical assessment/diagnosis

- Recommended that ANY child with a suspected concussion see's a **Medical Doctor or Nurse Practitioner** as soon as possible (ER, walk-in clinic, family doctor)
- **Why is it important to receive medical assessment?**
  - Want to rule out more severe injury
  - Obtain proper diagnosis
  - Receive a medical note for concussion diagnosis to support return to school and sport accommodation
- **When to go to ER vs immediate appointment with MD/NP?**
  - 911 or ER immediately if red flag symptoms are present

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# Refer to medical assessment/diagnosis

Yes Concussion	No Concussion
<ul style="list-style-type: none"><li>• Parent/guardian must give written documentation from the medical appointment to the head coach</li><li>• Head coach must send documentation to TSA: <a href="mailto:tsaleagues@torontosoccer.net">tsaleagues@torontosoccer.net</a> once received</li><li>• The player is to begin Stage 1 of the TSA return-to-sport protocol</li><li>• Head coaches will follow gradual return to sport protocol and ensure no participation in stage 5 and 6 sport activities until medical clearance</li></ul>	

# Refer to medical assessment/diagnosis

Yes Concussion	No Concussion
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# Refer to medical assessment/diagnosis

- It is the parent/guardian's responsibility to take the child/youth to **see a medical doctor or nurse practitioner** as soon as possible for medical assessment
- No child/youth with a suspected concussion should return to any team/club activity until they've been medically assessed.
- Written medical documentation must be obtained from a medical doctor or nurse practitioner whether a concussion has been diagnosed or not.
- A remove-from-sport summary can be a helpful tool to provide parents on seeking appropriate and timely medical assessment.
- There are template medical assessment letters available from Rowan's Law for families to use for diagnosis and clearance

Canadian Guideline for Concussion in Sport, 2017

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# Tools to have on sidelines

## REGONIZE IT

### CONCUSSION RECOGNITION TOOL 5®

To help identify concussion in children, adolescents and adults



#### RECOGNISE & REMOVE

Head impacts can be associated with serious and potentially fatal brain injuries. The Concussion Recognition Tool 5 (CRT5) is to be used for the identification of suspected concussion. It is not designed to diagnose concussion.

#### STEP 1: RED FLAGS – CALL AN AMBULANCE

If there is concern after an injury including whether ANY of the following signs are observed or complaints are reported then the player should be safely and immediately removed from play/game/activity. If no licensed healthcare professional is available, call an ambulance for urgent medical assessment:

- Neck pain or tenderness
- Severe or increasing headache
- Deteriorating conscious state
- Double vision
- Seizure or convulsion
- Vomiting
- Weakness or tingling/burning in arms or legs
- Loss of consciousness
- Increasingly restless, agitated or combative

#### Remember:

- In all cases, the basic principles of first aid (danger, response, airway, breathing, circulation) should be followed.
- Do not attempt to move the player (other than required for airway support) unless trained to do so.
- Do not remove a helmet or any other equipment unless trained to do so safely.
- Assessment for a spinal cord injury is critical.

If there are no Red Flags, identification of possible concussion should proceed to the following steps:

#### STEP 2: OBSERVABLE SIGNS

Visual clues that suggest possible concussion include:

- Lying motionless on the playing surface
- Disorientation or confusion, or an inability to respond appropriately to questions
- Slow to get up after a direct or indirect hit to the head
- Balance, gait difficulties, motor incoordination, stumbling, slow laboured movements
- Blank or vacant look
- Facial injury after head trauma

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## REPORT IT

### Suspected Concussion Report Form



Player Name: \_\_\_\_\_ Player DOB: \_\_\_\_\_  
Date & Time of Injury: \_\_\_\_\_ Club Name: \_\_\_\_\_  
Division: \_\_\_\_\_ Level: \_\_\_\_\_ Game/Practice Location: \_\_\_\_\_ Sex: M F  
Position during injury (please circle): Defense Midfield Forward Goalie

Injury Description: Player to player contact ☐ Ball to player contact ☐ Fall to ground ☐ Other ☐

#### Reported and Observable Symptoms (Check all that apply):

<input type="checkbox"/> Headache	<input type="checkbox"/> Feeling mentally foggy	<input type="checkbox"/> Sensitive to light
<input type="checkbox"/> Nausea	<input type="checkbox"/> Feeling slowed down	<input type="checkbox"/> Sensitive to noise
<input type="checkbox"/> Dizziness	<input type="checkbox"/> Difficulty concentrating	<input type="checkbox"/> Irritability
<input type="checkbox"/> Vomiting	<input type="checkbox"/> Difficulty remembering	<input type="checkbox"/> Sadness
<input type="checkbox"/> Visual problems	<input type="checkbox"/> Drowsiness	<input type="checkbox"/> Nervous/anxious
<input type="checkbox"/> Balance problems	<input type="checkbox"/> Sleeping more/less than usual	<input type="checkbox"/> More emotional
<input type="checkbox"/> Numbness/tingling	<input type="checkbox"/> Trouble falling asleep	<input type="checkbox"/> Fatigue

#### Red Flag Symptoms (Check all that apply): Call 911 immediately with a sudden onset of any of these symptoms

<input type="checkbox"/> Severe or increasing headache	<input type="checkbox"/> Neck pain or tenderness	<input type="checkbox"/> Seizure or convulsion
<input type="checkbox"/> Double vision	<input type="checkbox"/> Loss of consciousness	<input type="checkbox"/> Repeated vomiting
<input type="checkbox"/> Weakness or tingling/burning in arms/legs	<input type="checkbox"/> Deteriorating conscious state	<input type="checkbox"/> Increasingly restless, agitated or combative

Are there any other observable/reported symptoms? ☐ Yes ☐ No

If yes, what: \_\_\_\_\_

Is there evidence of injury to anywhere else on body besides head? ☐ Yes ☐ No

If yes, where: \_\_\_\_\_

Has this player had a concussion before? ☐ Yes ☐ No ☐ Don't know ☐ Prefer not to answer

If yes, how many: \_\_\_\_\_

Does this player have any pre-existing medical conditions? ☐ Yes ☐ No ☐ Don't know ☐ Prefer not to answer

If yes, please list: \_\_\_\_\_

Does this player take any medication? ☐ Yes ☐ No ☐ Don't know ☐ Prefer not to answer

If yes, please list: \_\_\_\_\_

I (name of coach completing this form): \_\_\_\_\_ recommended to the player's parent or guardian that the player sees a medical doctor/nurse practitioner immediately. This includes a family physician, pediatrician, sports-medicine physician, neurologist or internal medicine/rehabilitation (physiatrists). Documentation from any other source will not be acceptable.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Role: \_\_\_\_\_  
Phone Number: \_\_\_\_\_ Email Address: \_\_\_\_\_

This form is to be completed by the head coach in the event of a suspected concussion in any club and/or team soccer activity. Once complete, give one copy of this report to parent/guardian and the other to TSA office. Parents must take this form to medical appointment with medical doctor or nurse practitioner. This report form is aligned with best practice guidelines and a tool to be used to support the remove, refer and report sections of the Canada Soccer Concussion Policy.

## REFER IT

### Remove-from-sport protocol summary



**STEP 1 (REMOVE):** A suspected concussion has been identified and player is removed from play. Head coaches hold the final decision to remove players with a suspected concussion

**STEP 2 (REPORT):** Head coach completes Suspected Concussion Report Form and provides a copy to:

Parent/Guardian AND recommend they see a medical doctor/nurse practitioner immediately

TSA Office: [tsaleagues@torontosoccer.net](mailto:tsaleagues@torontosoccer.net)

**STEP 3 (REFER):** \*Seeing a medical doctor or nurse practitioner for medical assessment

#### If player is experiencing any general concussion symptoms:

Physical: Headaches, nausea, dizziness, sensitivity to light and noise  
Mental: Fogginess and difficulty thinking, feeling slowed down, difficulty concentrating and remembering  
Sleep: Sleeping more or less than usual, difficulty falling asleep and staying asleep  
Emotional and Behavioural: Sadness, anger, frustration, nervousness/anxious, irritable

#### If player is experiencing any 'Red Flag' Symptoms:

- Severe or increasing headache
- Double vision
- Weakness or tingling/burning in arms/legs
- Neck pain or tenderness
- Loss of consciousness
- Deteriorating conscious state
- Seizure or convulsion
- Repeated vomiting
- Increasingly restless, agitated or combative

This includes: Family Physician, Pediatrician, Sports-Medicine Physician, Psychiatrist, Neurologist or Nurse Practitioner. Documentation that does not fit this criteria will not be accepted.

Schedule an appointment immediately with a medical doctor/nurse practitioner. \*Go to nearest Emergency Department if 'Red Flag' symptoms appear.

Call 911 immediately to go to nearest Emergency Department

**STEP 4 (ASSESSMENT):** Was a concussion diagnosis received at medical or emergency appointment?

Parent sends medical documentation or diagnosis to head coach who will send to TSA office

Parent monitors for 24-72 hours in case symptoms appear or worsen

**STEP 5 (RECOVER):** Enter Stage 1 of Return to Play Protocol

Parent sends medical documentation of no diagnosis head coach at least 24 hours before returning to full game play

Head coach to send to TSA office prior to player returning to play.

Recommended medical diagnosis template: [Canada Soccer Concussion Assessment Medical Report](#)

Made in collaboration with the Concussion Centre from the Holland Bloorview Kids Rehabilitation Hospital. This algorithm is to be provided to parents/players in the event of a suspected concussion to support their pathway to appropriate medical care for diagnosis. This pathway is aligned with best practice guidelines and can be used to support the remove, refer, report and recover sections of the Canada Soccer Concussion Policy.

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# Q&A

- ✓ **Recognize** the sign and symptoms (classroom, sport, other activities)
- ✓ **Remove** child/youth from the activity
- ✓ **Report** suspected injury to child/youth's parent/guardian and a team/club designate. Ensure they are not left alone and do not drive themselves
- ✓ **Refer** child/youth to medical doctor or nurse practitioner for assessment and diagnosis



# Recovery and clinical support



# Changes in rest recommendation

## The shift to an active rehabilitation approach

- Rest beyond 48 hours and strict limitations to low-risk activity **is no longer recommended**
- Encourage patients with post-concussion symptoms to engage in cognitive activity and low-risk physical activity **as soon as tolerated** while staying below their symptom-exacerbation thresholds. (Reed, N. & Zemek, R. et al 2019)
- Prolonged rest and periods of restricted activity **may place children and youth at risk for secondary issues and contribute to the chronicity of concussion symptoms** (Schneider et al, 2013; Silverberg et al 2019; Thomas et al 2015)

**Increased evidence for identification of high risk youth and need for early referral to specialized care**

**Recommendation 2.1b:** Note common modifiers that may delay recovery and use a clinical risk score to predict risk of prolonged symptoms. (Reed, N. & Zemek, R. et al 2019)

**Recommendation 3.5:** Consider early referral (prior to 4-week post-injury) to an interdisciplinary concussion team in the presence of modifiers that may delay recovery. (Reed, N. & Zemek, R. et al 2019)

ONF Living guidelines on diagnosing  
and managing pediatric concussion

# Understanding who may need more support

## Common modifiers:

- ✓ Age (13-18 higher risk)
- ✓ Sex (female higher risk)
- ✓ Duration of recovery from a previous concussion
- ✓ High pre-injury symptom burden
- ✓ High symptom burden at initial presentation
- ✓ Clinical evidence of vestibular or oculomotor dysfunction
- ✓ Personal and family history of migraines
- ✓ History of learning or behavioural difficulties
- ✓ Personal and family history of mental health issues
- ✓ Family socioeconomic status/education – High & Low
- ✓ Family stress

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# Does history of concussion influence recovery?

- **Duration of recovery from previous concussions** (i.e. >4 weeks of symptoms) is a factor which has increased likelihood of a longer recovery with subsequent concussions
- Number of previous concussions **has not shown as a consistent factor** for prolonged recover in the research – unless there is multiple concussion injuries in a short time period.
- This is why it's important to follow active but gradual return-to-sport and school protocols to limit risk of another injury during concussion recovery

(Reed, N. & Zemek, R. et al 2019)

# Our clinical programs



## Early concussion care clinic

- $\leq 4$  weeks from injury to receive care from physician/NP and OT
- Requires physician referral
- Provides symptom management, return-to-school support, return-to-sport guidance and medical clearance



## Persistent symptoms clinic

- $> 4$  weeks from injury to receive care from physician, OT, PT, nursing, social work and neuropsychology (OHIP covered)
- Requires physician referral
- Provides ongoing symptom management strategies and individualized approach to client and family goals

[hollandbloorview.ca/concussion](https://hollandbloorview.ca/concussion)

**No boundaries**

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# Return-to-sport protocol

# Return-to-sport

## What should return to sport look like:

0. **Diagnosis received and initial rest period of 24-48 hours**
1. **Symptoms limited activity** → Reintroduce work/school
2. **Light aerobic exercise** → Increase heart rate
3. **Sport-specific drills** → Add movement
4. **Non-contact drills** → Exercise, coordination and increased thinking

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Follow up with medical doctor or nurse practitioner for clearance

5. **Full contact practice** → Restore confidence and assess functional skill by coaching staff
6. **Return to full sport participation/competition**

McCorry et al. 2016

# Return-to-sport

- **Parent/guardian and the player are responsible** to ensure that each stage of the *TSA return-to-sport protocol* is followed appropriately and the required signatures are completed at each stage.
- Players should complete each stage of the return-to-sport protocol for a **minimum of 24 hours without new or worsening symptoms before progressing to the next stage**. If a player experiences, new or worsening symptoms at a particular stage they should return to the previously successful stage.

McCroory et al. 2016

No boundaries

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# Return-to-sport

Stage 3: Soccer specific skill exercise individually (at least 24 hours)		Effort: 50-60%
<ul style="list-style-type: none"><li>• Off the field. Increase intensity and duration of cardio workout to 20-30 minutes.</li><li>• Begin soccer specific skills: running drills, static/dynamic foot dribbling with use of cones, individual kicking/passing.</li><li>• Goalies do not complete in net activities or drills involving diving or receiving shots with a ball.</li><li>• <b>No head impact activities (i.e. no heading, no tackling, no scrimmages).</b></li></ul>		
Confirmed completion Stage 3 for <u>minimum</u> of 24 hours <b>with no new or worsening symptoms</b> on _____ MM/DD/YY		
_____	_____	
(Player Signature)	(Parent/Guardian Signature)	
Stage 4 (a): Soccer specific exercise with an instructor/teammate (at least 24 hours)		Effort: 75%
<ul style="list-style-type: none"><li>• Can begin 1:1 modified on-field practices. Increase duration and intensity of training activities.</li><li>• Begin resistance training including neck and core strengthening exercises.</li><li>• Begin practicing soccer drills with a partner: dribbling and passing.</li><li>• Begin reviewing offensive and defensive plays at a slow speed.</li><li>• Goalies begin in net drills with a coach shooting balls in a controlled manner (i.e. Begin with drills involving diving side-to-side without a ball, progress to ball shots along the ground, medium height, then higher shots to corners).</li><li>• <b>No head impact activities (i.e. no heading, no tackling, no scrimmages).</b></li></ul>		
Confirmed completion Stage 4(a) for <u>minimum</u> of 24 hours <b>with no new or worsening symptoms</b> on _____ MM/DD/YY		
_____	_____	
(Player Signature)	(Parent/Guardian Signature)	

Crory et al. 2016

# Return-to-sport – Stage 3

## Stage 3: Soccer specific skill work done individually

- Increase intensity and duration of cardio workout to 20-30 minutes.
- Begin soccer specific skills: running drills, static/dynamic foot dribbling with use of cones, individual kicking/passing.
- Goalies do not complete in net activities or drills involving diving or receiving shots with a ball.
- No head impact activities (i.e. no heading, no tackling, no scrimmages).

McCrary et al. 2016

**No boundaries**

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# Return-to-sport – Stage 4 (a)

## Stage 4(a): Soccer specific exercise with instructor or teammate

- Can begin 1:1 modified on-field practices. Increase duration and intensity of training activities.
- Begin resistance training including neck and core strengthening exercises.
- Begin practicing soccer drills with a partner: dribbling and passing.
- Begin reviewing offensive and defensive plays at a slow speed.
- Goalies begin in net drills with a coach shooting balls in a controlled manner (i.e. Begin with drills involving diving side-to-side without a ball, progress to ball shots along the ground, medium height, then higher shots to corners).
- No head impact activities (i.e. no heading, no tackling, no scrimmages).

McCrary et al. 2016

No boundaries

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# Return-to-sport – Stage 4 (b)

## **Stage 4(b): Non-contact team training**

- On field practice. Resume pre-injury duration of practice and team drills (i.e. more complex training activities).
- Practice passing/shooting drills, offensive, defensive and counter attack tactical schemes (coordination & attention).
- Goalies begin in net drills with a teammate shooting balls in controlled manner (i.e. facing shots from a single ball in play or players shooting one at a time from distance).
- Able to participate in full school activities without experiencing symptoms (i.e. full schedule, assignments, tests)
- No head impact activities (i.e. no heading, no tackling, no scrimmages).

McCrory et al. 2016

**No boundaries**

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# Medical Clearance

- Once Stages 1-4 (b) of the *TSA return-to-sport protocol* have been completed, the player must receive medical clearance to proceed to *Stage 5: Full contact practice with team*. **A player is not permitted to return to *Stage 5: Full contact practice with team* or *Stage 6: Game Play* until written permission by a medical doctor/nurse practitioner.**
- Written clearance by a medical doctor or nurse practitioner may be provided in any format from the medical appointment. See [recommended medical clearance letter template](#).
- Once medical clearance for *Stage 5: Full contact practice with team* is obtained, the parent/guardian must provide head coach with:
  - Written clearance from the medical doctor/nurse practitioner (highlighting player is safe to return to full team practice and game play)
  - *TSA return-to-sport protocol* with all signatures completed

McCrory et al. 2016

# Prepping for first game back

## Stage 5: Full contact practice

- CONTACT. SCRIMMAGE. HEADING. TACKLING.
- Review and practice techniques for heading the ball (if applicable to your level of play).
- Participate in a full practice to get yourself back in the lineup. If completed with no symptoms, discuss with the coach about getting back to full game play.
- Goalies return to full team practice with hard driven shots, higher intensity drills, and practicing corner kicks.

McCrory et al. 2016

No boundaries

**Holland Bloorview**  
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# Medical clearance

- Head coaches to submit written medical clearance and *TSA Return-to-sport protocol* with signatures to the TSA head offices **prior to the player participating in Stage 6: Game Play** [tsaleagues@torontosoccer.net](mailto:tsaleagues@torontosoccer.net) or FAX: 416-783-5194.
- Do not progress to game play until player has regained their pre-injury skill-level and player is confident in their ability to return to activity.
- Head coaches have the right to refuse a player to return to any TSA club sanctioned activity if they deem the player unfit to do so.

McCrory et al. 2016

No boundaries

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# Special considerations

*What happens when a suspected concussion from a club/team activity is not identified/reported until days or weeks after the club/team activity?*

**Action:** Remove from sport, report and refer a suspected concussion

**Rationale:** Immediately upon the concussion being suspected and/or reported to team officials, the trainer/head coach is to complete a Suspected Concussion Report Form/Injury Report Form and recommend that the player see a medical doctor/nurse practitioner as soon as possible.

McCrory et al. 2016

No boundaries

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# Special considerations

***What happens when a child/youth sustains a concussion from a non club/team activity (i.e. school, other sports, non club/team related games or training)?***

**Action:** request or obtain medical diagnosis

**Rationale:** As the concussion did not happen at a club/team activity, no *Suspected Concussion Report Form/Injury Report Form* is needed. However, regardless of where a concussion was sustained child/youth is required to follow a return to sport protocol

McCrory et al. 2016

**No boundaries**

**Holland Bloorview**  
Kids Rehabilitation Hospital

# Q&A

- ✓ Recovery and best practice updates
- ✓ Clinical support
- ✓ Return-to-sport protocol
- ✓ Medical clearance requirements



**No boundaries**

# Stakeholder responsibilities – head coaches

Under this policy head coaches are responsible for:

**1) Recognizing and removing:**

- **Recognizing** the signs & symptoms of concussion
- **Removing** players, ensuring their **monitored** and **recommend** they seek medical attention

**2) Completing the following forms:**

- TSA Suspected Concussion Report Form

**3) Submitting all forms received from parents from medical appointments (diagnosis and clearance) to TSA**

**4) Ensuring all players with a suspected concussion to **not return to contact activity until medically cleared to do so.****

# Stakeholder responsibilities – parents and players

Under this policy parents and players are responsible for:

## Parents

- Obtaining medical documentation
- Are most responsible person for *Return to Play Protocol*
- Signing all stages in *Return to Play Protocol*
- Communicating and sending documentation (diagnosis/no diagnosis, medical clearance and completed Return to Play Protocol to head coach).

## Players

- Report signs and symptoms of concussion to head coach, and be honest with coaches, team officials and parents
- Gradually move through *Return to Play Protocol*
- Signing all stages in *Return to Play Protocol*

# Stakeholder responsibilities – team and match officials

Under this policy team and match officials are responsible for:

## Team Officials

- All other team officials (assistant coach, trainer, manager, assistant manager, match officials or executive member) hold a responsibility to **recognize** the signs and symptoms of concussion, and **report the suspected concussion to the head coach**

## Match Officials

- Recognize the signs & symptoms of concussion and **report the suspected concussion to the head coach**
- Enforce rules and penalize dangerous plays

Information about the new TSA  
Concussion Policy  
can be found at:  
[www.torontosoccerassociation.ca](http://www.torontosoccerassociation.ca)

## TSA Concussion Policy



1

This policy is aligned and consistent with the [Canada Soccer Concussion Policy](#) and the [Canadian Guideline on Concussion in Sport](#). This policy was made to enhance implementation of national guideline at the club and grassroots level.

### PURPOSE AND DEFINITIONS

This concussion policy aims to ensure (1) all players with a suspected concussion are removed from play and seek medical assessment, and (2) all players with a suspected or diagnosed concussion do not return to full contact practice and/or game play until medically cleared to do so. The TSA Concussion Protocol was made in collaboration with the Concussion Centre from Holland Bloorview Kids Rehabilitation Hospital.

- **What is a concussion?** Concussion is an injury to the brain resulting in a disturbance of brain function involving thinking and behavior.
- **What causes concussion?** Concussion can be caused by a direct blow to the head or an impact to the body causing rapid movement of the head.

### STEP 1: RECOGNITION

Recognizing a suspected concussion and removal from sport

- When should a concussion be suspected?** All players who experience any concussion reported signs and symptoms (Figure 1) or visual/observation symptoms (Figure 2) following a blow to the head or another part of the body is considered to have a suspected concussion and must stop participation in the TSA club sanctioned activity immediately. Symptoms of concussion typically appear immediately but may be delayed and evolve within the first 24-48 hours.
- What is considered a TSA club sanctioned activity?**
  - Competing in TSA league or cup matches
  - Ontario Soccer sanctioned competition
  - Any team coach supervised training
- A suspected concussion can be recognized in three ways:**
  - Reported signs and symptoms by a player— even if only one symptom (Figure 1)
  - Visual/observable signs and symptoms from any team official (Figure 2)
  - Peer-reported signs and symptoms from players, parents, and team officials (Figure 1 and 2)
  - If a player experiences a sudden onset of any of the “red flag symptoms”, 911 should be called immediately (Figure 3)

McCrory P, et al. Consensus Statement on Concussion in Sport: [the 5th International conference on concussion in sport](#) held in Berlin, Oct 2016. British Journal of Sports Medicine 2017;015-010  
[Aligned with Canada Soccer's National Concussion Policy](#)  
The TSA Concussion Policy was made in collaboration with the [Concussion Centre](#) from the Holland Bloorview Kids Rehabilitation Hospital  
Version: April, 2019

No boundaries

**Holland Bloorview**  
Kids Rehabilitation Hospital

# DOWNLOAD/PRINT BEFORE THE SEASON

**Suspected Concussion Report Form**

Player Name: \_\_\_\_\_ Player DOB: \_\_\_\_\_  
Date & Time of Injury: \_\_\_\_\_ Club Name: \_\_\_\_\_  
Division: \_\_\_\_\_ Level: \_\_\_\_\_ Game/Practice Location: \_\_\_\_\_ Sex: M F  
Position during injury (please circle): Defense Midfield Forward Goalie

Injury Description: Player to player contact ☐ Ball to player contact ☐ Fall to ground ☐ Other ☐

**Reported and Observable Symptoms (Check all that apply):**

<input type="checkbox"/> Headache	<input type="checkbox"/> Feeling mentally foggy	<input type="checkbox"/> Sensitive to light
<input type="checkbox"/> Nausea	<input type="checkbox"/> Feeling slowed down	<input type="checkbox"/> Sensitive to noise
<input type="checkbox"/> Dizziness	<input type="checkbox"/> Difficulty concentrating	<input type="checkbox"/> Irritability
<input type="checkbox"/> Vomiting	<input type="checkbox"/> Difficulty remembering	<input type="checkbox"/> Sadness
<input type="checkbox"/> Visual problems	<input type="checkbox"/> Drowsiness	<input type="checkbox"/> Nervous/Anxious
<input type="checkbox"/> Balance problems	<input type="checkbox"/> Sleeping more/less than usual	<input type="checkbox"/> More emotional
<input type="checkbox"/> Numbness/Tingling	<input type="checkbox"/> Trouble falling asleep	<input type="checkbox"/> Fatigue

**Red Flag Symptoms (Check all that apply): Call 911 immediately with a sudden onset of any of these symptoms**

<input type="checkbox"/> Severe or increasing headache	<input type="checkbox"/> Neck pain or tenderness	<input type="checkbox"/> Seizure or convulsion
<input type="checkbox"/> Double vision	<input type="checkbox"/> Loss of consciousness	<input type="checkbox"/> Repeated vomiting
<input type="checkbox"/> Weakness or tingling/burning in arms/legs	<input type="checkbox"/> Deteriorating conscious state	<input type="checkbox"/> Increasingly restless, agitated or combative

Are there any other observable/reported symptoms? ☐ Yes ☐ No  
If yes, what: \_\_\_\_\_

Is there evidence of injury to anywhere else on body besides head? ☐ Yes ☐ No  
If yes, where: \_\_\_\_\_

Has this player had a concussion before? ☐ Yes ☐ No ☐ Don't know ☐ Prefer not to answer  
If yes, how many: \_\_\_\_\_

Does this player have any pre-existing medical conditions? ☐ Yes ☐ No ☐ Don't know ☐ Prefer not to answer  
If yes, please list: \_\_\_\_\_

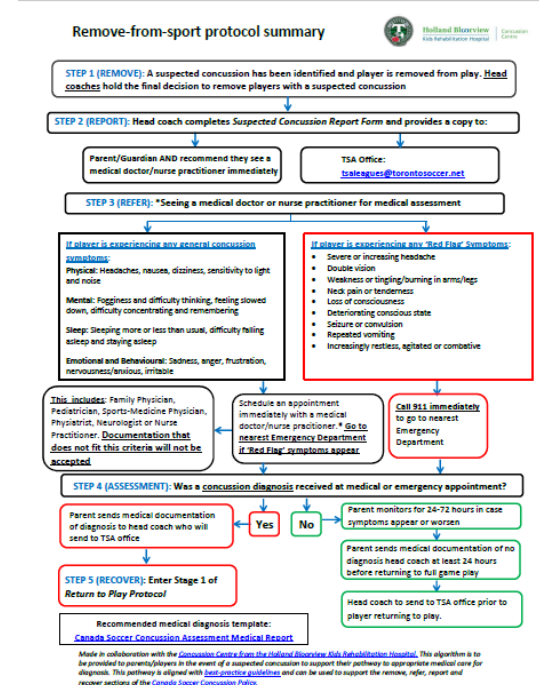
Does this player take any medication? ☐ Yes ☐ No ☐ Don't know ☐ Prefer not to answer  
If yes, please list: \_\_\_\_\_

I (name of coach completing this form): \_\_\_\_\_ recommended to the player's parent or guardian that the player see a medical doctor/nurse practitioner immediately. This includes a family physician, pediatrician, sports-medicine physician, neurologist or internal medicine/rehabilitation (physiatrists). Documentation from any other source will not be acceptable.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Role: \_\_\_\_\_  
Phone Number: \_\_\_\_\_ Email Address: \_\_\_\_\_

This form is to be completed by the head coach in the event of a suspected concussion in any club and/or team soccer activity. Once complete, give one copy of this report to parent/guardian and the other to TSA office. Parents must take this form to medical appointment with medical doctor or nurse practitioner. This report form is aligned with best practice guidelines and a tool to be used to support the remove, refer and report sections of the Canada Soccer Concussion Policy.

## Suspected Concussion Report Form



## Remove-from-sport summary (parents after suspected injury)

**TSA return-to-sport protocol**

**Stage 0: Initial rest period of 24-48 hours before beginning return to play protocol**

**Stage 1: Symptom limited activity (at least 24-48 hours)**

- Daily activities that do not provoke symptoms.
- Conserve your brain and body's energy. It is needed to feel well and allow the brain to heal.

**Stage 1: Signature of completion (requires player & parent/guardian signatures)**

I confirm that \_\_\_\_\_ completed Stage 1 for minimum of 24 hours with no symptoms on \_\_\_\_ MM/DD/YY

(Player Signature) (Parent/Guardian Signature)

**Stage 2: Light aerobic exercise (at least 24 hours) Effort: 50%**

- Off the field. Start a cardio workout of 15-20 minutes which can include: stationary bicycle, elliptical, treadmill, fast paced walking, light jog, rowing or swimming.
- No resistance training, weight lifting, jumping or hard running.
- No head impact activities (i.e. no heading, no tackling, no scrimmages)

**Stage 2: Signature of completion (requires player & parent/guardian signatures)**

I confirm that \_\_\_\_\_ completed Stage 2 for minimum of 24 hours with no symptoms on \_\_\_\_ MM/DD/YY

(Player Signature) (Parent/Guardian Signature)

**Stage 3: Soccer specific skill exercise individually (at least 24 hours) Effort: 50-60%**

- Off the field. Increase intensity and duration of cardio workout to 20-30 minutes.
- Begin soccer specific skills: running drills, static/dynamic foot dribbling with use of cones, individual kicking/passing.
- Goalies do not complete in net activities or drills involving diving or receiving shots with a ball.
- No head impact activities (i.e. no heading, no tackling, no scrimmages)

**Stage 3: Signature of completion (requires player & parent/guardian signatures)**

I confirm that \_\_\_\_\_ completed Stage 3 for minimum of 24 hours with no symptoms on \_\_\_\_ MM/DD/YY

(Player Signature) (Parent/Guardian Signature)

**Stage 4 (A): Soccer specific exercise with an instructor/teammate (at least 24 hours) Effort: 75%**

- Can begin 1:1 modified on-field practices. Increase duration and intensity of training activities.
- Begin resistance training including neck and core strengthening exercises.
- Begin practicing soccer drills with a partner: dribbling and passing.
- Begin reviewing offensive and defensive plays at a slow speed.
- Goalies begin in net drills with a coach shooting balls in a controlled manner (i.e. Begin with drills involving diving side-to-side without a ball, progress to ball shots along the ground, medium height, then higher shots to corners).
- No head impact activities (i.e. no heading, no tackling, no scrimmages)

**Stage 4 (A): Signature of completion (requires player & parent/guardian signatures)**

I confirm that \_\_\_\_\_ completed Stage 4 (A) for minimum of 24 hours with no symptoms on \_\_\_\_ MM/DD/YY and I discussed my return to play stage with my coach at practice.

(Player Signature) (Parent/Guardian Signature)

Made in collaboration with the Concussion Centre from the Holland Bloorview Kids Rehabilitation Hospital. This form is to be completed by parents and players to guide and document progress through return-to-sport steps after a diagnosed concussion with their coach and healthcare professional. This report form is aligned with best practice guidelines and a tool to be used to support the return to soccer strategy of the Canada Soccer Concussion Policy. Additional Acknowledgement: Montreal Children's Hospital

Version: April 6, 2019

## Return-to-sport protocol

No boundaries

## Closing remarks

**No boundaries**