



Concussion Resources for Players & Participants





Version 1: December 2018

The Concussion Awareness Training Tool (CATT) is a series of online educational modules and resources with the goal of standardizing concussion recognition, diagnosis, treatment, and management. Good concussion management may decrease the risk of brain damage and potentially reduce long-term health issues.

Developed by Dr. Shelina Babul, Associate Director/Sports Injury Specialist with the BC Injury Research and Prevention Unit, BC Children's Hospital, CATT is based upon the established principles of the Consensus Statement on Concussion in Sport. The 2017 Berlin Concussion in Sport Group Consensus Statement builds on the principles outlined in previous concussion statements and aims to develop better understanding of sport-related concussion.

Research and evidence on concussions is evolving and the knowledge base is continually changing. As a result, this website is updated on a regular basis to provide current information, tools, and resources to support concussion recognition, diagnosis, treatment, and management.

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What You Need to Know About Concussion

This information sheet provides a brief overview on the appropriate care for an individual with a concussion. It outlines the three key steps in dealing with concussion (i.e. recognize, respond and manage) in order to assist your players/athletes in their recovery from this injury. The information included here is meant to supplement what is included in the CATT online courses. Visit cattonline.com to take a knowledge course.

Recognize

A concussion occurs when there is a significant impact to the head or body that causes the brain to move inside the skull. Common causes of concussion include **falls, motor vehicle crashes, and sport and recreational-related activities**.

There is no way to know for certain whether a particular event will lead to a concussion—a relatively minor impact may result in a concussion while a higher-magnitude hit may not. It is important to note that if there is a history of concussion, even a minor hit can trigger symptoms. Signs can be observed while symptoms are experienced by the individual.

The signs and symptoms of concussion in **individuals** include, but are not limited to:

- Headache
- Dizziness
- Nausea
- Blurred vision
- Light/sound sensitivity
- Imbalance
- Ringing in the ears
- Seeing “stars”
- Irritability
- Fogginess
- Fatigue
- Difficulty concentrating
- Poor memory
- Neck pain
- Sadness
- Confusion

Concussion signs to watch for in an **infant or toddler** may include:

- Crankiness and irritability (beyond their usual)
- Any sudden changes in sleeping pattern, eating or playing pattern
- Not interested in their favourite toys or activities
- Forgets a new skill (e.g., toilet training)
- Listless
- Loss of balance, unsteady walking
- Not eating or nursing
- Cannot be comforted

Respond










Following a potential concussion-causing event, the individual should be removed from activity immediately and assessed for **Red Flags**.

If any of the **Red Flags** are present, call an ambulance or seek immediate medical care.

If no **Red Flags** are present:

- Do not leave the individual alone
- Notify an emergency contact person, parent or caregiver
- Continue to monitor for Red Flags and signs and symptoms of concussion
- Do not let the individual return to their activity
- Do not give the individual any immediate medication
- Do not let the individual leave by themselves
- Do not let the individual drive or ride a bike

RED FLAGS

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

The individual should be monitored for up to 48 hours before assuming that a concussion has not occurred, including monitoring throughout the night following the initial injury. Only wake the individual if you have concerns about their breathing, changes in skin colour, or how they are sleeping. Call an ambulance or seek immediate medical care if the individual is slow to wake or shows any of the **Red Flags**. Within 48 hours:

- If any signs are detected or symptoms are experienced, seek medical attention from a licensed medical professional such as a physician or nurse practitioner (if applicable in your area).
- If no signs or symptoms appear, the individual can return to normal activity but should be monitored for several days. If no signs or symptoms appear, chances are that a concussion was not sustained. If unsure, see a medical professional for guidance.

Manage

A concussion can have a significant impact on physical, cognitive, and emotional functioning. The recovery process involves balancing activities such that they do not trigger or worsen symptoms—the key is finding the “sweet spot.”

The recovery process is best done in collaboration with key individuals, such as medical professionals, family members, friends, employers, teachers and school staff, and coaches.

The first and most important step in recovery from a concussion is to rest for a maximum of 2 days. The individual will need both physical and cognitive rest in order to allow the brain to heal.

- Physical rest includes participation in activities that do not result in an increased heart rate or breaking a sweat. Restrict: exercise, sports, running, biking, rough play, etc.
- Cognitive activity should be limited, minimizing activities that require concentration and learning. Restrict: reading, electronics (computers, smartphones, video games, TV), work/schoolwork, playing musical instruments, listening to loud music, etc.

REMEMBER:

Recovery is a fluctuating process. The individual can be doing well one day but not the next.

Once symptoms start to improve, or after a maximum of 2 days of rest, the individual should begin a step-wise process to return to regular activity, including school, work, sports, etc.

Symptoms should decrease over the course of time. If you are worried that the individual is not improving, follow-up with a licensed medical professional, such as a physician or nurse practitioner (if applicable in your area).

On average, an adult takes 7 to 10 days to recover from concussion, while children and youth typically take 2 to 4 weeks. While most concussions resolve within 3 months, persistent symptoms have the potential to cause long-term difficulties. Individuals dealing with symptoms lasting longer than 2 weeks in adults and longer than 4 weeks in children and youth may require additional medical assessment and multidisciplinary management.

REMEMBER:

CATT resources to support the recovery process include:

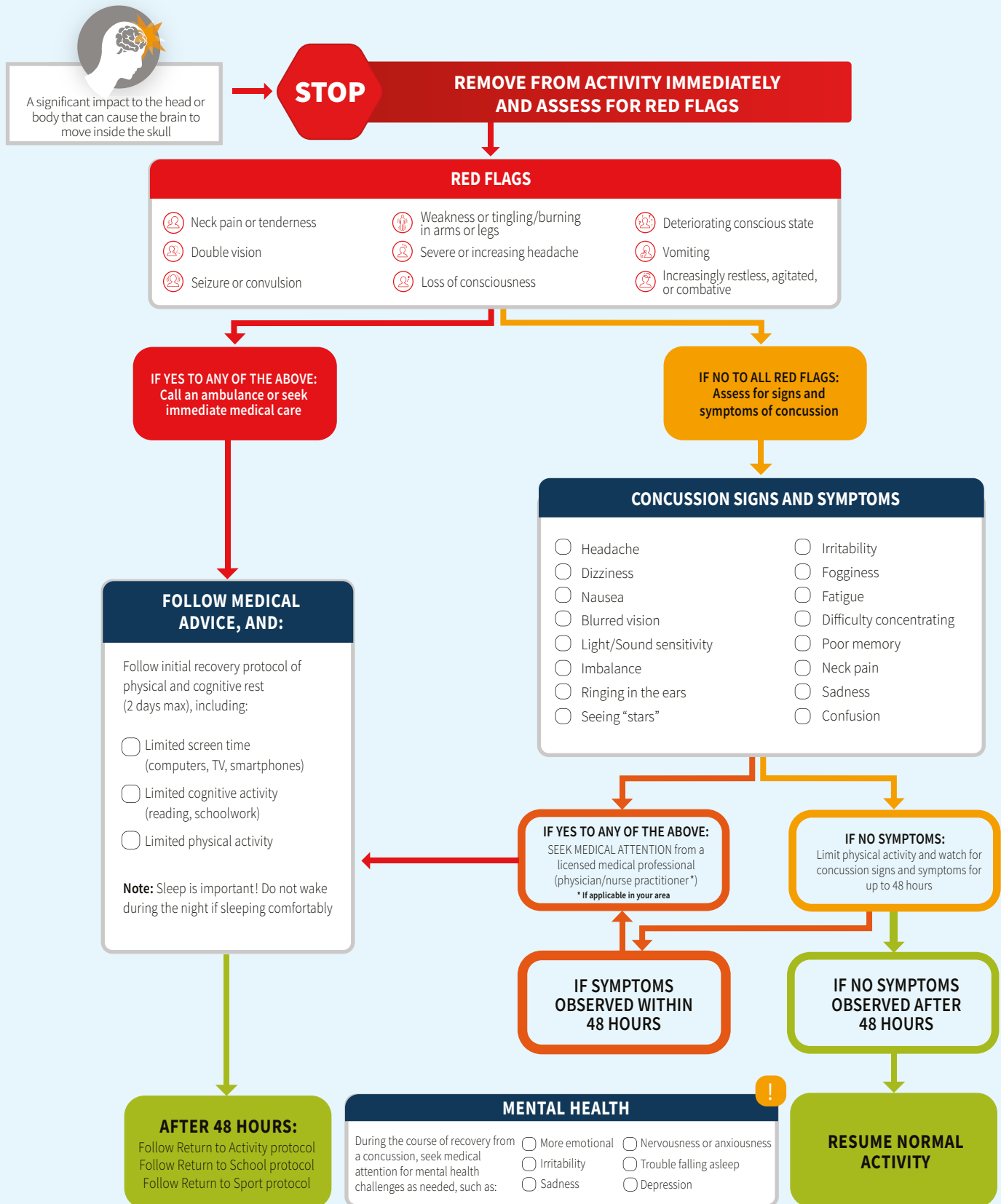
- **Return to Activity**
- **Return to School**
- **Return to Sport**

The recovery period may be influenced by:

- Prior concussions
- History of headaches or migraines
- Learning disabilities
- Mental health issues
- ADHD
- Use of drugs or alcohol
- Returning to activities too soon
- Lack of family or social supports

Proper management of a concussion can reduce the risk of complications. It is important that the individual has successfully returned to school or work before fully returning to sport and physical recreation activities. Returning to activity too early may result in more severe symptoms and potentially long-term problems.

CATT Concussion Pathway



QUESTIONS TO ASK YOUR DOCTOR (For Adults)

If you suspect that you may have a concussion, you should see your doctor right away.
This is a list of questions you can take with you.

INITIAL TREATMENT AND OBSERVATION

What kind of medication can I take?
Does someone need to be with me at all times?

WHAT I CAN DO

Can I eat? Will I have an upset stomach?
What kind of activities can I do at this stage of recovery?

Can I read/use the computer/play video games?
When can I go back to work?
When can I return to physical activity?
Can I drive?

SYMPTOMS

What symptoms should I be watching for?
How soon will symptoms begin to improve?
How long will these problems last?

THE RISKS

What is the risk of a future concussion?
What is the risk of long-term complications?

FOLLOW-UP WITH THE DOCTOR

When should I come back to see you?
Under what circumstances should I call you?
Should a specialist be consulted?
Are there any resources you recommend?

ADDITIONAL QUESTIONS:

Caring for Your Concussion

About Concussion

A concussion is a **brain injury**. Even though you can't see it, it can affect the way you think, feel, and even sleep. Like any medical diagnosis, it will require direct physician involvement to guide a safe return to school, work, play, and life.

Each concussion is unique. Each person may experience different symptoms, triggers, and timeline for recovery, so your concussion requires an individualized approach based on your specific symptoms.

Did you know that it can take up to 7 days for symptoms of a concussion to appear?

When to Go Back to the Doctor

- Worsening symptoms may be a sign of a more serious injury. Go to the Emergency Department if headaches become more severe, pupils are unequal in size, or if you experience any of the following:
 - Getting more and more confused
 - Weakness/tingling in arms or legs
 - Worsening headache
 - Trouble walking
 - Vomiting more than once
 - Slurred speech
 - Seizures
 - Strange behaviour
- After being diagnosed with a concussion, you should have a follow-up appointment with a medical doctor within two weeks to be re-assessed.

My follow-up appointment is scheduled for _____
(date)

Recovering from Concussion

- Rest in the first 24-48 hours following a concussion may be beneficial, but *prolonged* rest has not been found to improve concussion recovery, and may even delay recovery. After an initial period of rest, getting back to a normal daily routine with regular sleeping habits is important to help your brain and body recover.
- Reducing time spent on devices or doing certain activities may be recommended, to keep symptom levels low. This is because concussion symptoms can be made worse when your brain is overstimulated by:
 - physical activity
 - cognitive (thinking) activities
 - certain environments (bright lights, loud noise, crowds)

While some patients find screens (TV, computer, cellphone) or reading increases their symptoms, others may tolerate these activities.

Returning to School

- Students may need to stay home from school in the first days following a concussion, but a long absence from school is not recommended. Students should have regular medical follow-up after a concussion to monitor recovery and help with return to school.
- Find out if your school has a Return to Learn Program to support students returning to school after concussion. If you need more support and accommodations for school, your physician may refer you to a physician-led multi-disciplinary concussion clinic with experience in individualized learning plans following a concussion.

Returning to Sport

- Children and youth should NOT return to sports/competition until they have successfully returned to school, but early introduction of reduced physical activity is appropriate.
- A gradual, step-wise return to cognitive and physical activity is best following concussion. This process is individualized, guided by your symptoms, and supervised by your physician.
- Written clearance documentation will be required from a physician (medical doctor) before you return to a sport or activity that carries a risk of contact or possible head injury.

Persistent Symptoms

- Typically, concussion symptoms can last up to 4 weeks in youth (under 18) and 2 weeks in adults.
- If symptoms persist beyond this, a physician with experience in concussion management together with an interdisciplinary concussion clinic is recommended.
- When seeking care, ensure the clinic you choose offers:
 - direct access to and continued involvement of a medical doctor with experience in concussion management,
 - a network or interdisciplinary team of three or more different regulated health care providers, and
 - a clinic that can provide a full spectrum of concussion care from early management to that of a prolonged course for individuals with persistent symptoms when needed.

More Information on Concussion

- www.parachutecanada.org/concussion
- www.cattonline.com

Return to Sport

This tool is a guideline for managing an individual's return to sport following a concussion and does not replace medical advice. Timelines and activities may vary by direction of a health care professional.

STAGE 1:	STAGE 2:	STAGE 3:	STAGE 4:	STAGE 5:	STAGE 6:
No sporting activity Physical and cognitive rest until symptoms start to improve OR after resting for 2 days max.	Light aerobic exercise Walking, swimming, stationary cycling. No resistance training. The pace of these activities should be at the point where you are still able to have a conversation.	Sport-specific exercise Skating drills (ice hockey), running drills (soccer). No head-impact activities.	Non-contact drills Progress to complex training drills (e.g. passing drills). May start resistance training.	Full-contact practice Following medical clearance participate in normal training activities.	Back in the game Normal game play
Recovery	Increase heart rate	Add movement	Exercise, coordination, cognitive load	Restore confidence; assess functional skills	
Symptoms improve or 2 days rest max? Yes: Move to stage 2 No: Continue resting Time & Date completed: _____ _____	No new or worsening symptoms for 24 hours? Yes: Move to stage 3 No: Return to stage 1 Time & Date completed: _____ _____	No new or worsening symptoms for 24 hours? Yes: Move to stage 4 No: Return to stage 2 Time & Date completed: _____ _____	Symptom-free for 24 hours? Yes: Move to stage 5 No: Return to stage 3 Time & Date completed: _____ _____	Symptom-free for 24 hours? Yes: Move to stage 6 No: Return to stage 4 Time & Date completed: _____ _____	Note: Premature return to contact sports (full practice and game play) may cause a significant setback in recovery.

If new or worsening symptoms are experienced at any stage, go back to the previous stage for at least 24 hours. You may need to move back a stage more than once during the recovery process.

Medical clearance required before moving to stage 5

BOTH TOOLS CAN BE USED IN PARALLEL; HOWEVER, RETURN TO SCHOOL SHOULD BE COMPLETED BEFORE RETURN TO SPORT IS COMPLETED

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CONCUSSION AWARENESS
TRAINING TOOL

BC INJURY research and
prevention unit
www.injuryresearch.bc.ca

Return to Activity

This tool is a guideline for managing an individual's return to activity following a concussion and does not replace medical advice. Timelines and activities may vary by direction of a health care professional.

STAGE 1:	STAGE 2:	STAGE 3:	STAGE 4:	STAGE 5:
Initial rest <ul style="list-style-type: none"> Stay home in a quiet and calm environment Limit your screen time (computer, television, and smartphone use) Keep any social visits brief Sleep as much as your body needs while trying to maintain a regular night sleeping schedule <p>Note: The goal for each stage is to find the 'sweet spot' between doing too much and too little.</p>	Prepare to return to activity <ul style="list-style-type: none"> Test your readiness by trying some simple, familiar tasks such as reading, using the computer, or shopping for groceries Keep the time on each activity brief (e.g., less than 30 minutes) and take regular rest breaks Go for walks or try other light physical activity (e.g., swimming, stationary bike), without becoming short of breath Keep bed rest during the day to a minimum. It is unlikely to help your recovery 	Increase your activity <ul style="list-style-type: none"> Gradually return to usual activities and decrease rest breaks Start with less demanding activities before harder ones Physical activity might include jogging, lifting light weights, or non-contact sport drills, gardening, dancing <p>Note: You could start returning to school or work on a part-time basis (e.g., a few hours per day).</p>	Gradually resume daily activities <p>Resuming daily activities can be challenging because your energy and capacity for activities may be variable, but should improve day-to-day or week-to-week.</p> <p>Students and workers may require accommodations, such as reduced hours, reduced workload, extra time for assignments, or access to a quiet distraction-free work environment.</p>	Full return to activity <ul style="list-style-type: none"> Full class schedule, with no rest breaks or accommodations Full work schedule with usual expectations for productivity Student athletes should not return to sport competition until they have fully returned to school <p>Only return to contact sports or dangerous job duties (e.g., operating heavy equipment, working from heights) when cleared by your doctor.</p>
Rest	Get ready to return	Start your return	Continue your return	
When symptoms start to improve OR after resting for 2 days max, BEGIN STAGE 2	Tolerates simple, familiar tasks, BEGIN STAGE 3	Tolerates further increase in level of activity, BEGIN STAGE 4	Tolerates partial return to usual activities, BEGIN STAGE 5	

If new or worsening symptoms are experienced at any stage, go back to the previous stage for at least 24 hours. You may need to move back a stage more than once during the recovery process.

Each person will progress at his/her own pace. It is best not to "push" through symptoms. If you do too much, your symptoms may worsen. Decrease your activity level and your symptoms should settle. Then continue to gradually increase your activity in smaller increments.

Adapted from Noah D. Silverberg, PhD

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 **CONCUSSION AWARENESS
TRAINING TOOL**

BC INJURY research and
prevention unit
www.injuryresearch.bc.ca

Activity Suggestions for Recovery Steps After Concussion

Teenager (11+)

Step 1 - Rest

- Cellphone (no texting only calling)
- Crafts: molding clay
- Friends visit (one at a time)
- Knitting and quilting
- Listen to Audiobooks
- Meditation
- Nap
- Photography
- Scrapbooking

Step 2 –Light Activity

- Cooking and baking
- Crafts: origami, sculpting
- Go to the beach
- Listen to quiet music (no headphones)
- Magazines
- Poetry
- Puzzles
- Re-read familiar books
- Archery
- Billiards
- Camping
- Croquette
- Darts
- Fishing
- Freestyle Swimming
- Lawn bowling
- Light Jogging
- Playing catch
- Stationary cycling
- Walking
- Yoga (no hot yoga)

Step 3 - Sport-specific Activity

- Crosswords
- Shopping at mall
- Sudoku
- Air hockey or foosball
- Biking
- Calisthenics (stability exercises)
- Curling
- Dribbling, keep-ups and stickhandling
- Golf
- Hiking/orienteering
- Light badminton
- Ping Pong
- Running
- Skating
- Snorkeling
- Tai chi/Karate
- Wii or Xbox Kinect games
- Volleyball (keep ups)
- Windsurfing

Step 4- Non-contact Practice

- Aerobics and plyometrics
- Baseball/Cricket
- Basketball
- Canoeing/kayaking
- Dance and Cheer (no stunts)
- Figure Skating (no jumping)
- Football Drills
- Hockey Drills
- Light Weight Training
- Mountain/rock climbing
- Non-Contact Soccer (no heading)
- Pilates
- Shadow boxing
- Squash or Tennis
- Track and Field
- Volleyball (no diving)

WARNING: Preform activities ONLY if symptom free. If the symptoms appear during activity, STOP immediately.

Use suggestions in conjunction with CanChild concussion guidelines available at:
http://www.canchild.ca/en/ourresearch/mild_traumatic_brain_injury_concussion_education.asp

Additional Resources

CATT – Concussion Incident Report (2018)

<https://cattonline.com/wp-content/uploads/2017/10/Concussion-Incident-Report-2018-V3.pdf>

Parachute – Medical Assessment Letter (2017)

http://www.parachutecanada.org/downloads/injurytopics/Medical-Assessment-Letter_Parachute.pdf

Parachute – Medical Clearance Letter (2017)

http://www.parachutecanada.org/downloads/injurytopics/Medical-Clearance-Letter_Parachute.pdf

CATT – Return to School (2017)

<https://cattonline.com/wp-content/uploads/2017/10/CATT-Return-to-School-V11.pdf>

Canadian Concussion Collaborative – 4 Characteristics of a Good Concussion Clinic (2017)

<https://casem-acmse.org/wp-content/uploads/2018/06/CCES-PUB-CCC-4Qs-E-FINAL.pdf>

ONF – Guideline for Concussion/Mild Traumatic Brain Injury and Persistent Symptoms, Patient Version (2018)

<https://braininjuryguidelines.org/concussion/index.php?id=154>

Parachute – Concussion Guide for Athletes (2018)

<http://www.parachutecanada.org/downloads/resources/Concussion-Athletes.pdf>

Parachute – Statement on Concussion Baseline Testing in Canada (2018)

<http://www.parachutecanada.org/downloads/injurytopics/BaselineTestingStatement-Parachute.pdf>

For more information and resources on concussion, please visit cattonline.com.