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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, Director/Sports Injury Specialist with the BC Injury Research and Prevention Unit, BC Children's Hospital, and Clinical Professor, Department of Pediatrics, University of British Columbia, CATT is based upon the established principles of the Consensus Statement on Concussion in Sport and other evidence-based resources. The 2023 Amsterdam 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.

The information, including text and images of this package are intended for your information only, does not substitute professional medical advice, and is provided for educational purposes only. Always seek the advice of a physician or other qualified health care provider about any questions you may have regarding a medical condition.

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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 to assist recovery from this injury: recognize, respond, and manage. Visit cattonline.com for further information, resources, or to take one of the e-learning courses tailored for healthcare professionals, workers & workplaces, coaches, athletes, youth, school professionals, parents & caregivers, and women's support workers (supporting survivors of intimate partner violence).

#### Recognize

A concussion is the most common form of brain injury caused by an impact or forceful motion 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 impact may not.

The following signs and symptoms are consistent with concussion. Some signs and symptoms may be delayed for hours or days after an injury:

- Headache / Pressure in head
- Balance problems / Dizziness
- Nausea or vomiting
- Drowsiness
- Blurred vision
- Light / Sound sensitivity
- Fatigue or low energy
- · "Don't feel right"
- Neck pain

- More emotional
- More irritable
- Sadness
- Nervous or anxious
- Difficulty concentrating
- Difficulty remembering
- · Feeling slowed down
- Feeling like "in a fog"
- Trouble falling asleep

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

- Crankiness and irritability (beyond their usual)
- · Cannot be comforted or excessive crying
- Sudden changes in nursing, eating, sleeping or playing patterns
- Loss of balance, unsteady walking (more so than normal)
- Lack of interest in favourite toys or activities
- Listlessness or tiring easily
- Loss of ability to carry on with newly acquired skills (across any social and emotional, language, physical development domains)

#### Respond

#### Immediately:

Following a potential concussion-causing event, the individual should be removed from activity and assessed for a medical emergency.

If any of the Red Flags are present, call 911 or seek immediate medical care.

Next steps if not a medical emergency:

- Do not leave the individual alone
- Notify an emergency contact person
- 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



Seizure, 'fits', or convulsion



Loss of vision or double vision



Loss of consciousness



Increased confusion or deteriorating conscious state (becoming less responsive, drowsy)



Weakness or numbness/tingling in more than one arm or leg



Repeated vomiting



Severe or increasing headache



Increasingly restless, agitated, or combative

#### Within 48 hours:

The individual should be monitored before assuming that a concussion has not occurred, including monitoring throughout the night following the initial injury. Do not wake the individual unless you have concerns about their breathing, changes in skin colour, or how they are sleeping. Call 911 or seek immediate medical care if the individual is slow to wake or shows any of the Red Flags.

- The individual should engage in limited physical activity that does not put them at risk for a head impact.
- If any signs or symptoms are present, seek medical attention from a doctor, nurse practitioner, or licensed healthcare professional with relevant training.
- If no signs or symptoms appear within 48 hours, the individual likely does not have a concussion, and can return to normal activities.
- If unsure, seek guidance from a doctor, nurse practitioner, or licensed healthcare professional with relevant training.

#### Manage

A concussion can have a significant impact on physical, cognitive, and emotional functioning. The recovery process involves managing activities in order to not worsen symptoms beyond mild and brief exacerbation\*—the key is finding the balance between doing too much and too little.

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

<sup>\*</sup>Mild exacerbation (worsening) of symptoms: No more than a 2-point increase when compared with the pre-activity value on a 0-10-point symptom severity scale.\*\* "Brief" exacerbation of symptoms: Worsening of symptoms for up to 1 hour.

<sup>\*\*0-10</sup> point symptom severity scale: Please see the Visual Analog Scale for an example of a 0-10 symptom severity scale.

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#### Within 48 hours:

#### The first and most important step in recovery from a concussion is relative rest for a maximum of 24-48 hours.

The individual will need both physical and cognitive rest in order to allow the brain to heal. Relative rest: activities of daily living including walking and other light physical and cognitive activities are permitted as tolerated. Screen time should be limited for the first 24-48 hours following concussion.

#### After 48 hours:

- Gradually increase physical and cognitive activity. Continue to increase as long as symptoms remain mild and brief. Examples: Computer work, watching TV, reading, jogging, light weight training
- Goal is to increase heart rate. Start with less demanding activities before harder ones.
- Keep naps during the day to a minimum. It is unlikely to help recovery.

The individual should begin to increase activities in a step-wise process to return to regular levels of activity, including work, school, and sports.

Symptoms should decrease over time, but some symptoms may return, worsen, or new symptoms may appear as new activity levels are introduced. If this happens, return to a lower level of activity that does not worsen symptoms beyond mild and brief exacerbation. If you are worried that the individual is not improving, follow-up with a medical or licensed healthcare professional with relevant training.

#### **REMEMBER:**

Recovery is a fluctuating process.

The individual can be doing well

one day but not the next.

On average, concussions resolve within 4 weeks. However, up to 30 percent will continue to experience persisting symptoms beyond this period. Persisting symptoms have the potential to cause long-term difficulties. If there is no improvement or symptoms are worsening 2-4 weeks after a concussion, referral to interdisciplinary care is recommended.

The recovery period may be influenced by:

- Previous 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
- Participating in high-risk sport

Proper management of a concussion can reduce the risk of complications. It is important that the individual has successfully returned to work or school before fully returning to sport and physical recreation activities. Returning to full activity too soon may result in more severe symptoms or long-term problems. As well, returning to high risk activities (contact sports, dangerous job duties) before full recovery and medical clearance can put the individual at risk of sustaining another concussion with more severe symptoms and a longer recovery period.

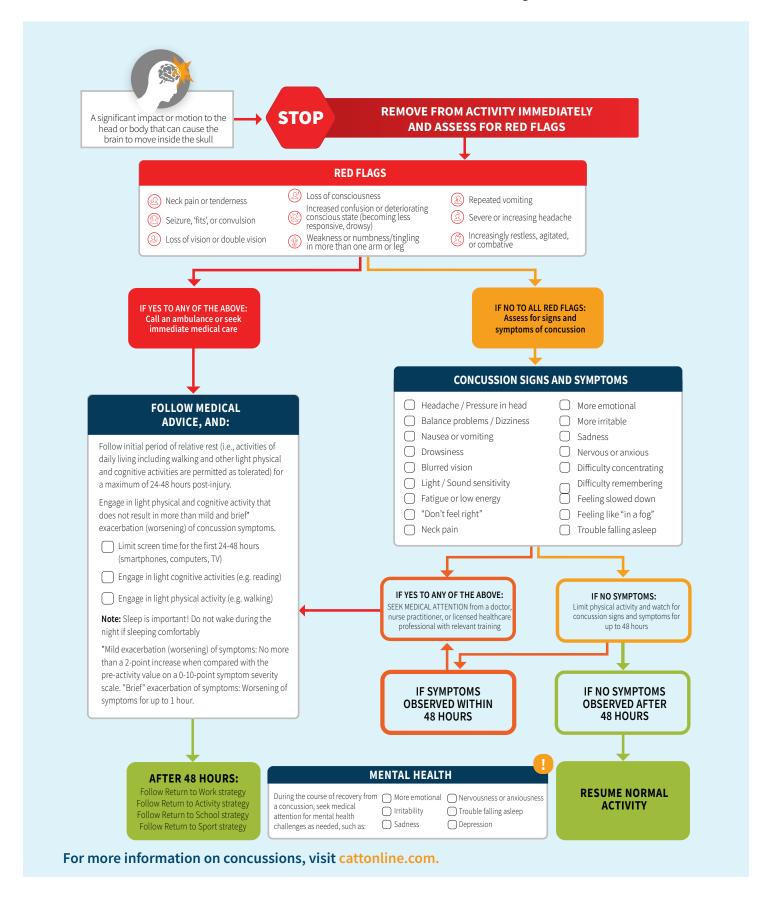
#### **REMEMBER:**

CATT resources to support the recovery process include:

- · Return to Work
- Return to Activity
- Return to School
- Return to Sport



## **CATT Concussion Pathway**





# Concussion Awareness Training Tool (CATT) Preseason Education Signoff Sheet

The following signatures certify that the player or participant and his or her parent or caregiver (if applicable) have reviewed and understand the information included in the CATT Concussion Information Sheet.

Name of Player or Participant (please print)	Signature	Date
Name of Parent or Caregiver	Signature	Date

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

## **CONCUSSION INCIDENT REPORT**



Follow the steps on the CATT Concussion Pathway, then document the incident below.

#### This incident form was completed by:

NAME: ORGANIZATION:

CONTACT DATE (DD/MM/YYYY):

INFORMATION:

Please indicate who you are completing this report for; who will receive this incident report? Please check all that apply:

Did you witness the event?

NAME AND CONTACT

OF ADDITIONAL

WITNESSES:

Injured person Supervisor/Employer

Emergency contact Teacher/School

Ambulance attendant

Coach/Sports organization

Healthcare professional (please specify):

Other (please specify):

#### **ABOUT THE INCIDENT**

DATE OF INCIDENT LOCATION OF (DD/MM/YYYY): INCIDENT:

TIME OF INCIDENT: AM PM

NAME OF NAME OF

INJURED PERSON: EMERGENCY CONTACT:

CONTACT INFO OF CONTACT INFO OF INJURED PERSON: EMERGENCY CONTACT:

Describe the incident. Please include as much detail as possible:

#### Did the incident involve any of the following? Please check all that apply:

Blow to the head Motor vehicle collision Struck by person
Hit to the body Fall Sport-related

Assault Struck by object Other:

## What was the immediate response to the incident? Please check all that apply:

What was the immediate outcome of the incident? Please check all that apply:

Called 911

Called emergency contact

Performed first aid

No response

Other:

Taken to hospital by ambulance

Attended to by paramedics

Left with emergency contact

Left independently

Returned to activity

Other:

#### Did the person exhibit any immediate signs or symptoms of concussion?

Yes

No

Don't know

#### If yes, check all that apply:

Neck pain or tenderness

Loss of vision or double vision

Weakness or numbness/tingling in more than one

arm or leg

Severe or increasing headache

Seizure, 'fits', or convulsion

Loss of consciousness

Increasing confusion or deteriorating conscious

state (becoming less responsive, drowsy)

Repeated vomiting

Increasingly restless, agitated or combative

Headache / Pressure in head

Balance problems / Dizziness

Nausea or vomiting

Drowsiness

Blurred vision

Light / Sound sensitivity

Fatigue or low energy

"Don't feel right"

More emotional

More irritable

Sadness

Nervous or anxious

Difficulty concentrating

Difficulty remembering

Feeling slowed down

Feeling like "in a fog"

Trouble falling asleep

#### To be filled out by administration only

Did this incident result in a concussion diagnosis?

Yes

No

Don't know

Could this incident have been prevented?

Yes

No

Don't know

Please describe any follow-up actions that have been taken (e.g., safety risk assessment):

Please describe how this incident could or could not have been prevented:

Please describe any follow-up actions that are needed (e.g., policy change to ensure health and safety):



#### **Medical Assessment Letter**

Modical (	Office, please complete:					
Practition	•					
Role and						
Email / Co						
Date of ev	vent / injury					
To Whom It	t May Concern:					
concussion	lual who sustains a blow or n or reports any of the symp ealthcare professional with t.	toms of concus	sion is recommend	ded to be assesse	ed by a doctor, n	urse practitioner, or
Name of Pa	atient:					
Results of t	the Medical Assessment					
	This patient has not been work, school, or physical			other injury and	can return, with	full participation to
	This patient has not beer recommendations:	n diagnosed wit	th a concussion bu	t the assessment	led to the follow	ving diagnosis and
	This making the AC beauti		Conference Conference			
	This patient HAS been di	agnosed with a	concussion. See b	elow for concussi	on management	r protocoi.
	This patient has been ins concussion or head injur duties, and contact spor Medical Clearance Letter	y, or activities v ts) until a medic	vith implications fo	or the safety of ot	hers (e.g., drivin	g, dangerous job
Yours Since	erely,					
Signature			_			
_			-			
Stamp						

#### **Concussion Management**

The goal of concussion management is to allow complete recovery through a safe and gradual return to work, school, and physical activities following a step-wise approach. *Note: a patient's progess through the return to activity steps is unique to the individual.* After Step 2, if more than mild and brief symptom exacerbation\* occurs, the patient may need to try the activity again the next day, and consider reassessment by their doctor, nurse practitioner, or licensed healthcare professional with relevant training if symptoms beyond mild and brief exacerbation persist. For more detailed guidance on step progression, please refer to the Concussion Awareness Training Tool (CATT) at <u>cattonline.com</u>.

Restrictions/Accommodations	Details	Timeline
Not yet completed Completed on (dd/mm Time period has passe	n/yyyy) d	
gradually resuming usual a	duated return to work, school, and physical activities o ctivities (supported with accommodations, modifica I that does not result in more than mild and brief syn	tions, and restrictions as needed) as
Step 3: Return to work, school, and p	hysical activity and gradually resume daily activities	
Not yet completed Completed on (dd/mm Time period has passe		
	eturn to activity process at home, by increasing famil m exacerbation, until no new or worsening concussi	
Step 2: Prepare to return to activity		
Not yet completed Completed on (dd/mm Time period has passe	n/yyyy) d	
In the first 24-48 hours the pinitiating a return to work o	patient has been instructed to engage in relative phy ractivity.	sical and cognitive rest** prior to
Step 1: Symptom-limited activity		
step progression, pieuse reier to the	concussion Awareness training root (CATT) at catto	mine.com.

Restrictions/Accommodations	Details	Timeline

<sup>\*</sup>Mild and brief symptom exacerbation: an increase in current concussion symptoms of no more than 2 points on a 0-10 point scale for less than an hour compared to the resting value prior to the activity (i.e., physical or cognitive).

<sup>\*\*</sup>Relative rest: activities of daily living including walking and other symptom-limited physical and cognitive activities are permitted, as tolerated.

Step 4: Full return to work, school, and physical activities

Not yet completed Completed on (dd/mm/yyyy) Time period has passed				
Restrictions/Accommodations	Details	Timeline		
Yours Sincerely,				
Signature				
Stamp				

The patient can return with full participation to work, school, and physical activities.

It is recommended that this document be provided to the patient without charge.

#### **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 based on direction from a doctor, nurse practitioner, or licensed healthcare professional with relevant training. Begin Step 1 within 24 hours of injury, with progression through each subsequent step taking a minimum of 24 hours.

#### STEP 1: STEP 6: STEP 2: **STEP 3: STEP 4:** STEP 5: 2A: Light effort **Activities of** 2B: Moderate Individual Non-contact Return to all **Return to sport** aerobic exercise effort aerobic daily living and sport-specific training drills non-competitive Back to normal, and activities relative rest\* activities activities exercise • Up to approximately unrestricted competitive (that do not have a risk of 55% of maximum game play, school gym · Maximum of 24-48 Up to approximately Progress to exercises at Return to all noninadvertent head impact) heart rate (predicted class, and physical hours 70% of maximum high intensity, including competitive activities, according to age - i.e. activities. heart rate (predicted · Addition of individual more challenging drills all gym class activities, · Activities at home such 220-age). sport-specific activities according to age - i.e. and activities. and full-contact as social interactions In a safe and controlled that are supervised by a 220-age). practices and light walking **Examples:** environment, engage in teacher/coach/parent. Take a break and modify Participate in higher-risk that do not result in Passing drills light aerobic exercise. **Examples:** more than mild and activities as needed with Multi-player training activities including **Examples:** Skating drills (hockey) brief\*\* exacerbation the aim of gradually normal training · Supervised non-• Running drills (soccer) Stationary cycling (worsening) of increasing tolerance and activities, all school contact gym class · Change of direction Walking at slow to concussion symptoms. the intensity of aerobic gym-class activities. activities drills medium pace and full-contact activities. **Examples:** • Individual gym class Practices without Light resistance sports practices and Preparing meals activities body contact training that does scrimmages. Avoid Housework It is important to get not result in more competitive gameplay. Light walking medical clearance before than mild and returning to training · Minimize screen time brief\*\* exacerbation **Note: Returning** Return to activities that involves any risk of for first 24-48 hours (worsening) that have a risk to full contact, inadvertent head impact. following concussion. of concussion of falling or body Resume usual competitive symptoms. contact, restore intensity of exercise, play or high-risk Increase intensity game-play coordination, and activities before of aerobic activities confidence, and activity-related and introduce vou have recovered have coaches assess Increase heart rate cognitive skills low-risk sportincreases the risk functional skills. specific movements of delayed recovery **Activities of daily** and changing of and for sustaining living, as tolerated directions another more If can tolerate If can tolerate non-If medically cleared and If can tolerate severe concussion After a maximum of have fully returned to usual intensity of competitive, high-risk moderate aerobic exercise, 24-48 hours after injury, or serious injury. school. activities, activities, **BEGIN STEP 2 BEGIN STEP 3 BEGIN STEP 4 BEGIN STEP 5 BEGIN STEP 6**

If more than mild exacerbation (worsening) of symptoms (i.e., more than 2 points on a 0-10 scale\*\*\*) occurs during Steps 1-3, stop the activity, and attempt to exercise the next day. Individuals experiencing concussion symptoms during Steps 4-6 should return to Step 3 to establish full resolution of symptoms with exertion before engaging in at-risk activities. Written determination of medical clearance should be provided before unrestricted Return to Sport as directed by local laws and/or sporting regulations.

Medical determination of readiness to return to at-risk activities should occur prior to returning to any activities that pose risk of contact, collision, or fall.

\*Relative rest: activities of daily living including walking and other light physical and cognitive activities are permitted as tolerated.

\*\*\*0-10 point symptom severity scale: Please see the Visual Analog Scale for an example of a 0-10 symptom severity scale.

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<sup>\*\*</sup>Mild exacerbation (worsening) of symptoms: No more than a 2-point increase when compared with the pre-activity value on a 0-10-point symptom severity scale. \*\*\* "Brief" exacerbation of symptoms: Worsening of symptoms for up



#### **Medical Clearance Letter**

Medical Office, please complete:		
Practitioner Name		
Role and License #		
Email / Contact #		
Date of Clearance Letter		
Practitioner / Patient please comp	lete:	
Date of Concussion		
Date of Concussion Diagnosis		
Organization/Individual Requesting Medical Clearance		
To Whom It May Concern:		
As part of the strategy, this patient had risk of another concussion or head injudangerous job duties, contact sports, eactivities they participate in, and I have Name of Patient:	r to the Concussion Awareness Training Tool (CAT previously been instructed to avoid all activities to until a medical clearance letter is provided (duetc.). This patient has explained the organizational expersonally completed a medical clearance on this	that could potentially place them at e to organizational requirements, requirements and the duties/ is patient.
	vidual. After Step 2, if more than mild and brief syr ain the next day, and consider reassessment by the and brief exacerbation persist.	
This patient can return w	ith full participation to work, school, or physical a	ctivities without restriction.
This patient can return to	work, school, or physical activities with the follo	wing restriction(s):
Restriction(s) Physical & Cognitive	Details	Timeline

This patient can return with full participation to work, school, or physical activities without accommodation.

This patient can return to work, school, or physical activities with the following accommodation(s):

Accommodation(s) Physical & Cognitive	Details	Timeline

Your understa	nding and support are critical compone	nts in this patient's continuing recovery.
Yours Sincerel	у,	
Signature		
Stamp		

It is recommended that this document be provided to the patient without charge.

### **Additional Resources**

BJSM - The Concussion Recognition Tool 6th Edition (CRT6) (2023)

https://bjsm.bmj.com/content/bjsports/57/11/692.full.pdf

CATT - Return to School Protocol (2023)

https://resources.cattonline.com/files/return-to-school-strategy

Parachute - Concussion Guide for Coaches and Trainers (2019)

https://www.parachute.ca/wp-content/uploads/2019/06/Concussion-Guide-for-Coaches-and-Trainers.pdf

Parachute – Canadian Guideline on Concussion in Sport (2017)

https://parachute.ca/en/professional-resource/concussion-collection/canadian-guideline-on-concussion-in-sport/

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

The Concussion Legacy Foundation Canada HelpLine supports patients and families struggling with the outcomes of brain injury. If you or a loved one are seeking guidance on how to choose the right doctor, struggling with lingering concussion symptoms, or have any other specific questions, submit a HelpLine request and a dedicated member of the Concussion Legacy Foundation Canada team will assist you:

https://www.concussionfoundation.ca/helpline

## Notes

