



Concussion Resources for Athletes



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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, Associate Director/Sports Injury Specialist with the BC Injury Research and Prevention Unit, BC Children’s Hospital, and Clinical Associate 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 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.

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.

*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.

**0-10 point symptom severity scale: Please see the [Visual Analog Scale](#) for an example of a 0-10 symptom severity scale.

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:

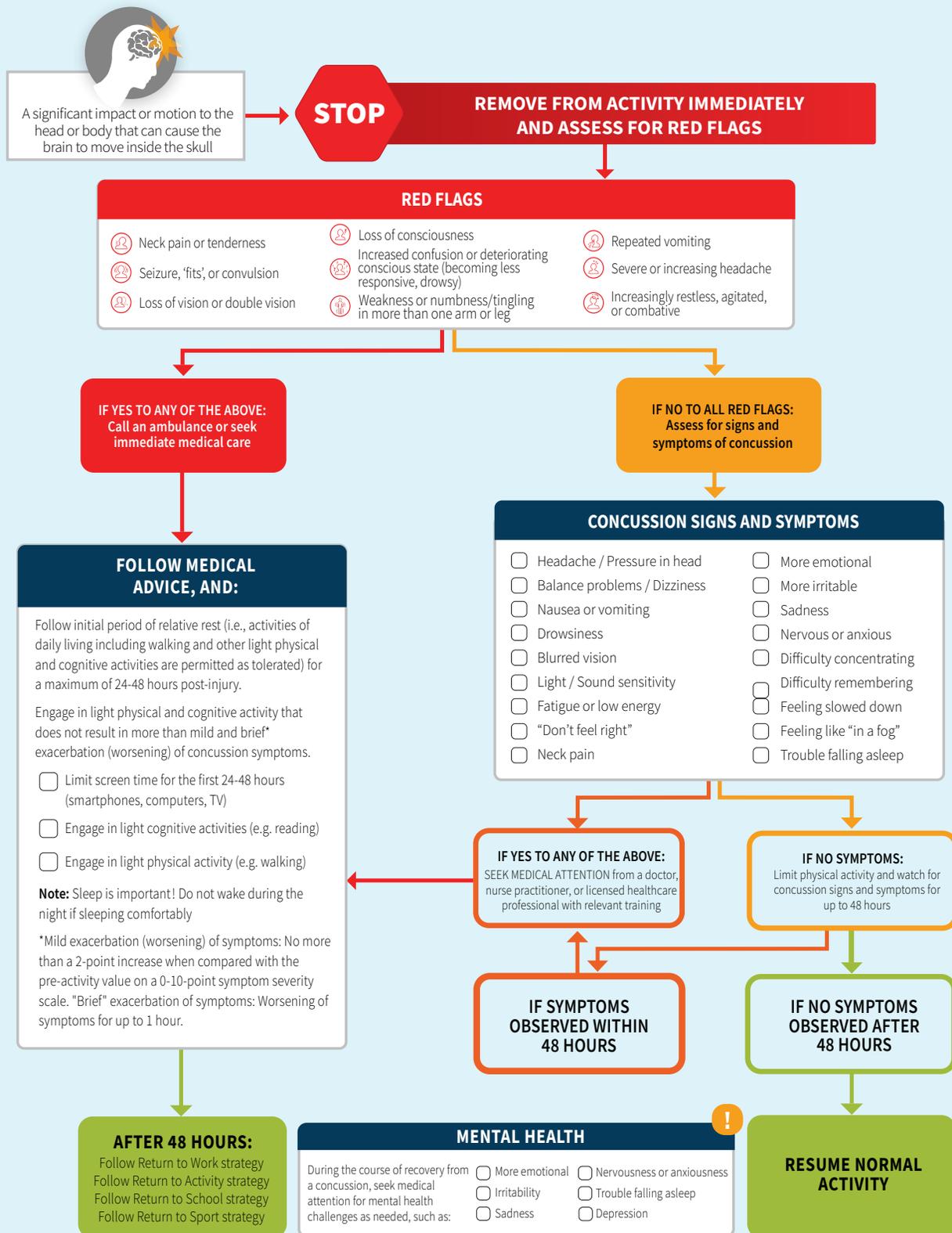
- Previous concussions
- History of headaches or migraines
- Learning disabilities
- Mental health issues
- ADHD
- Use of drugs or alcohol
- Returning to activities too soon
- Lack of family or social supports
- Participating in high-risk sport

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



For more information on concussions, visit cattonline.com.

QUESTIONS TO ASK YOUR DOCTOR

(For Adults)



If you suspect that you may have a concussion, you should see a doctor, nurse practitioner, or licensed healthcare professional with relevant training right away. This is a list of questions you can take with you.

INITIAL TREATMENT AND OBSERVATION

- Are you familiar with the latest guidelines on concussion management?
- What kind of medication can I take?
- Does someone need to be with me at all times?
- What vitamins/supplements can I take?

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?
- How can I cope with changes in my mental health or behaviour (e.g., feeling anxious, sad, irritable) as a result of my concussion?

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:

Return to School

This tool is a guideline for managing a student's return to school following a concussion and does not replace medical advice. Every concussion is unique, and recovery is very different for each individual. Not everyone will require a Return to School Strategy. Timelines and activities may vary based on direction from a doctor, nurse practitioner, or licensed healthcare professional with relevant training. Note: For information about returning to activities that pose risk of head contact, please refer to Return to School or Return to Activity.

| STEP 1: | STEP 2: | STEP 3: | STEP 4: |
|--|--|--|---|
| <p>Activities of daily living and relative rest*</p> <ul style="list-style-type: none"> • Maximum of 24-48 hours • Activities at home such as social interactions and light walking that do not result in more than mild and brief** exacerbation (worsening) of concussion symptoms. <p>Examples:</p> <ul style="list-style-type: none"> • Preparing meals • Housework • Light walking <ul style="list-style-type: none"> • Minimize screen time for the first 24-48 hours following concussion. • Avoid driving during the first 24-48 hours after a concussion. <p>Contact school to create a Return to School plan.</p> | <p>School activities (as tolerated)</p> <ul style="list-style-type: none"> • Returning to school as soon as possible (as tolerated) is encouraged. • Reading or other cognitive activities at school or at home. Goal: Increase tolerance to cognitive work, and connect socially with peers. • Take breaks and adapt activities if concussion symptom exacerbation (worsening) is more than mild and brief.** • Use of devices with screens may be gradually resumed, as tolerated. • Clearance from your doctor is not required to return to low-risk in-person or at-home school activities. • A complete absence from the school environment for more than one week is not generally recommended. <p>Communicate with school on student's progression</p> | <p>Part-time or full-time days at school with accommodations (if needed)</p> <ul style="list-style-type: none"> • Gradually reintroduce schoolwork. • May require accommodations, such as: <ul style="list-style-type: none"> • Partial school days with access to breaks throughout the day • Academic accommodations (extra time to complete work, reduced workload) to tolerate the classroom or school environment. <p>Communicate with school on student's progression.</p> | <p>Return to school full-time</p> <p>Return to full days at school and academic activities without requiring accommodations (related to the concussion).</p> <p>Note: Medical clearance is NOT required to return to school</p> <p>For returning to P.E. or sports, please refer to Return to Sport protocol.</p> |
| <p>Activities of daily living, as tolerated</p> | <p>Return to school as soon as possible, as tolerated</p> | <p>Gradually reduce accommodations and increase workload</p> | <p>Full academic load (no academic accommodations related to the concussion)</p> |
| <p>After a maximum of 24-48 hours after injury, BEGIN STEP 2</p> | <p>If can tolerate school activities, BEGIN STEP 3</p> | <p>If can tolerate full days without concussion-related accommodations, BEGIN STEP 4</p> | <p>Return to School completed</p> |

Students should begin a gradual increase in their cognitive load with the goal of minimizing time away from the school environment. The return to school should not be restricted if the student is tolerating full days. Progression through the strategy may be slowed when there is more than a mild and brief symptom exacerbation**; however, missing more than one week of school is not generally recommended. Driving should resume after consultation with a doctor, nurse practitioner, or healthcare professional.

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

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.

***0-10 point symptom severity scale: Please see the [Visual Analog Scale](#) for an example of a 0-10 symptom severity scale.

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 2: | | STEP 3: | STEP 4: | STEP 5: | STEP 6: |
|---|---|---|--|--|---|---|
| <p>Activities of daily living and relative rest*</p> <ul style="list-style-type: none"> Maximum of 24-48 hours Activities at home such as social interactions and light walking that do not result in more than mild and brief** exacerbation (worsening) of concussion symptoms. <p>Examples:</p> <ul style="list-style-type: none"> Preparing meals Housework Light walking <ul style="list-style-type: none"> Minimize screen time for first 24-48 hours following concussion. | <p>2A: Light effort aerobic exercise</p> <ul style="list-style-type: none"> Up to approximately 55% of maximum heart rate (predicted according to age - i.e. 220-age). In a safe and controlled environment, engage in light aerobic exercise. <p>Examples:</p> <ul style="list-style-type: none"> Stationary cycling Walking at slow to medium pace Light resistance training that does not result in more than mild and brief** exacerbation (worsening) of concussion symptoms. | <p>2B: Moderate effort aerobic exercise</p> <ul style="list-style-type: none"> Up to approximately 70% of maximum heart rate (predicted according to age - i.e. 220-age). Take a break and modify activities as needed with the aim of gradually increasing tolerance and the intensity of aerobic activities. | <p>Individual sport-specific activities (that do not have a risk of inadvertent head impact)</p> <ul style="list-style-type: none"> Addition of individual sport-specific activities that are supervised by a teacher/coach/parent. <p>Examples:</p> <ul style="list-style-type: none"> Skating drills (hockey) Running drills (soccer) Change of direction drills Individual gym class activities <p>It is important to get medical clearance before returning to training that involves any risk of inadvertent head impact.</p> | <p>Non-contact training drills and activities</p> <ul style="list-style-type: none"> Progress to exercises at high intensity, including more challenging drills and activities. <p>Examples:</p> <ul style="list-style-type: none"> Passing drills Multi-player training Supervised non-contact gym class activities Practices without body contact | <p>Return to all non-competitive activities</p> <ul style="list-style-type: none"> Return to all non-competitive activities, all gym class activities, and full-contact practices Participate in higher-risk activities including normal training activities, all school gym-class activities, and full-contact sports practices and scrimmages. Avoid competitive gameplay. | <p>Return to sport</p> <p>Back to normal, unrestricted competitive game play, school gym class, and physical activities.</p> |
| | <p>Increase heart rate</p> | | <p>Increase intensity of aerobic activities and introduce low-risk sport-specific movements and changing of directions</p> | <p>Resume usual intensity of exercise, coordination, and activity-related cognitive skills</p> | <p>Return to activities that have a risk of falling or body contact, restore game-play confidence, and have coaches assess functional skills.</p> | <p>Note: Returning to full contact, competitive play or high-risk activities before you have recovered increases the risk of delayed recovery and for sustaining another more severe concussion or serious injury.</p> |
| <p>Activities of daily living, as tolerated</p> | | | | | | |
| <p>After a maximum of 24-48 hours after injury, BEGIN STEP 2</p> | <p>If can tolerate moderate aerobic exercise, BEGIN STEP 3</p> | | <p>If medically cleared and have fully returned to school, BEGIN STEP 4</p> | <p>If can tolerate usual intensity of activities, BEGIN STEP 5</p> | <p>If can tolerate non-competitive, high-risk activities, BEGIN STEP 6</p> | |

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.

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

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.

***0-10 point symptom severity scale: Please see the [Visual Analog Scale](#) for an example of a 0-10 symptom severity scale.

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.

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Adapted from: Zemek, R., Reed, N., Dawson, J., et al. "Living Guideline for Pediatric Concussion Care." www.pedsconcussion.com (the PedsConcussion protocol was modified with permission from the [Amsterdam International Consensus Statement on Concussion in Sport](#)) © BCIRPU. All rights reserved | Version 12: Updated September 2023



CONCUSSION AWARENESS TRAINING TOOL

BC INJURY research and prevention unit

www.injuryresearch.bc.ca

Managing Mental Health Symptoms

According to the Canadian Standard Association (CSA)'s Standard Z1003, Psychological Health and Safety in the Workplace, positive mental health is a state of well-being in which the individual realizes their own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to their community. Mental health symptoms resulting from or increased by concussion are a growing concern. In addition to physical symptoms such as dizziness and headache, concussions can result in cognitive, social, emotional, and behavioural symptoms, such as mood swings, anxiety, memory issues and depression.

The following strategies to manage mental health challenges during concussion recovery are listed in the *Concussion Awareness Training Tool* e-learning modules:

- Physical activity, see Return to Sport/Return to Activity strategies for step-wise approach
- Deep breathing exercises;
- Identifying and reducing sources of stress;
- Meditation;
- Progressive Muscle Relaxation; and,
- Memory aids

This resource will provide more detail on each strategy. As every concussion is unique, these strategies are not a “one size fits all” approach and a few should be tried to find what works best.

This information is best used when combined with the guidance of a doctor, nurse practitioner, or licensed healthcare professional with relevant training who is experienced in concussion management. When mental health symptoms get to the point of interfering with daily activities or relationships, appropriate care from a medical or licensed healthcare professional with relevant training can help. Additional support from a psychologist, psychiatrist or other mental health professional may be needed.

Physical Activity, as Tolerated:

A period of activities of daily living and relative rest is recommended during the first 24-48 hours immediately following a concussion, with limited physical activity. Relative rest is defined as activities of daily living including walking and other symptom-limited physical activities, as tolerated.

Aerobic activity throughout your concussion recovery is recommended by following a concussion management strategy (e.g., Return to Sport, Return to Activity). Light aerobic exercise such as brisk walking, or gentle exertion on an exercise bike, walking in nature, and/or walking a dog could be beneficial.

Deep Breathing Exercises:

Deep breathing exercises can help you calm down when you are feeling stressed, anxious, dizzy, or lightheaded. You can do the exercise standing up, sitting in a chair that supports your back or lying on a bed or yoga mat on the floor. The key is to be as comfortable as you can. If possible, loosen any clothes that may restrict your breathing.

If you're lying down, place your arms slightly away from your sides, palms facing up. Let your legs be

straight, or if it is more comfortable for you, bend your knees so your feet are flat on the floor. If you're standing, place your feet about hip-width apart.

Try breathing in through your nose and out through your mouth, gently and regularly. It may be helpful to count steadily from one to four as you breathe in through your nose, count steadily from one to seven as you hold your breath, and count steadily from one to eight as you exhale through your mouth. Keep doing this for three to five minutes. There are many downloadable computer, tablet, and cell phone applications as well as YouTube videos that can help guide deep breathing exercises.

Identifying and Reducing Sources of Stress:

We all experience stress: daily demands and pressures can be physical, mental, or emotional. The stressful situation is known as *the stressor*, and the symptoms experienced when under stress is known as the *stress response*. Stressors can be both positive and negative: positive stressors are energizing—we are confident that we can complete the necessary tasks, such as planning a wedding or preparing for holidays. Examples of negative stressors include financial issues, divorce or a conflict between job demands and the amount of control one has over meeting those demands. The process of recovering from an injury, such as a concussion, is also a negative stressor. Further, your brain needs more energy to heal when recovering from a concussion and the smaller daily stresses that you dealt with prior to your concussion, both positive and negative, can feel overwhelming.

Noticing when you have physical, emotional, and behavioural stress responses can help identify sources of stress. Physical responses can include muscle aches, increased heart rate, low energy, tight chest or jaw, and dry throat and/or mouth. Emotional responses can include restlessness, agitation, feelings of worthlessness and/or anger, lowered concentration, and lack of motivation. Behavioural responses to stress can include skin picking, nail biting, teeth clenching, foot tapping, seeking reassurance, arguing, increasing substance use, spending money, and decreasing relaxing and fun activities.

The following can help to identify and reduce sources of stress:

- **Overscheduling can cause stress.** Write out all of your daily activities. Prioritize the ones that need to be done by you; for activities or tasks that can be done by others, delegate.
- **Failing to be assertive can cause stress.** Give yourself space and time to heal, and say no to requests you do not have the time or energy for.
- **Procrastination and/or failing to plan ahead can cause stress.** Keep note of what you need to accomplish during the day and week – after prioritizing, break the tasks into smaller steps. Free Pomodoro timers, available online, encourage focusing on a task distraction-free for 25 minutes, followed by a 5-minute break, can help structure time. You can also use the Pomodoro timer method by setting an alarm for 25 minutes followed by an alarm for a 5 minute break.
- **Overwhelming amounts of messages can cause stress.** Even messages from well-meaning friends and family members can feel overwhelming. In today's constantly connected society, the expectation of an immediate response to phone calls, text messages, and emails may be causing stress during your recovery. It can help to limit checking and responding to correspondence to set time frames. Set your voicemail message to indicate that you will respond in a certain time frame on certain weekdays and set a responder for your email services with the same.

Meditation:

There are many different ways to meditate, as well as audiobooks, YouTube videos, and computer, tablet and cell phone applications to guide meditation. HealthLinkBC recommends “mindful meditation” to aid relaxation and relieve stress. The goal is to focus attention on the present moment, making note of what you experience without trying to change it. No special tools or equipment are required.

According to HealthLinkBC:

Getting ready

Choose a time and place where you can meditate without being interrupted. Try to find a quiet place, but don't worry if there are some noises, such as traffic. That kind of noise is just part of the present moment.

When you start, try to meditate for only 10 minutes at a time. Then you can increase the time bit by bit. You can also try meditating for 10 minutes in the morning and 10 minutes in the evening.

Before you sit down, remind yourself that you are there to focus on the present moment. This may help keep your mind from wandering. Your daily routine and other distractions will all be waiting for your attention after your meditation session.

The practice

Sit in a comfortable position, either in a chair or on the floor. Or lie down, if that is more comfortable. You can close your eyes, or you can look down, keeping your gaze a few centimetres in front of you on the floor.

As you sit, start to pay attention to your breathing. This is a good way to focus your attention on what is happening right now. Don't try to change your breathing. Just notice how it feels in your lungs and chest.

If your mind wanders, don't worry or feel bad about yourself. Try to notice your thoughts, such as "I wonder what I will need to do at my 10 a.m. work meeting." Then let the thought go, and bring your focus back to the present moment and your breathing. You may do this over and over again during a meditation session. That's okay.

During your meditation, you may feel certain emotions, such as anger, impatience, sadness or happiness. Don't try to hold on to or let go of these feelings. Just notice them. They are part of your experience of the present moment. Keeping your attention on your breathing will help you stay focused and not get lost in the thoughts that your feelings may trigger. For example, if you feel impatient to finish the meditation so you can start the laundry, see if you can focus on the feeling of the impatience rather than thoughts of the laundry. Where do you feel the impatience in your body? Does it feel tight? Does it affect your breathing?

Source: [HealthLinkBC Stress Management: Doing Meditation](#)

Progressive Muscle Relaxation:

Anxiety and stress can cause tense muscles. Progressive Muscle Relaxation (PMR) involves intentionally tensing and then relaxing different groups of muscles, one at a time, to relieve that tension. This can also aid in falling asleep. There are YouTube videos online and audiobooks available at your local library or bookstore to help guide PMR if desired.

During PMR, you should be lying comfortably on your back, on the floor or a bed. You can place a pillow under your head and/or the small of your lower back for support. Your arms should be slightly apart from your torso, with palms facing up. Eyes should be closed and the room should be quiet.

Breathe in, and tense the first muscle group (tightly, but not the point of pain or cramping) for 4 to 10 seconds. Breathe out, and completely relax the muscle group all at once (do not relax it gradually). Relax, focusing on breathing deeply in and out, for 10 to 20 seconds before the next muscle group. Notice the difference between how the muscles feel when they are tensed and how they feel when they are relaxed. Practicing the full technique, wherein each muscle group across the entire body is engaged for a short period of time, takes 10-15 minutes. Finish with a few deep breaths and a mental scan of your body to notice any remaining tension.

The following is a list of the muscle groups in order and how to tense them.

- **Feet:** Stretch toes and tense arches.
- **Lower legs:** Point toes towards your face, and then point toes away from face, curling them downward at the same time.
- **Thighs (front):** Squeeze quadriceps muscles (front of thighs) and imagine pulling your kneecaps up towards you with the force of your clenching. Keep legs flat on the floor.
- **Thighs (back):** Clench your hamstring muscles (back of your thighs), with your legs lying flat.
- **Hips and buttocks:** Squeeze buttocks together tightly.
- **Stomach:** Suck it into a tight knot towards your spine.
- **Back:** Bring your shoulder blades together and arch your back up and away from the floor or bed.
- **Hands:** Squeeze into fists, thumbs over fingers.
- **Forearms:** Clench your hands into fists curl them up towards the ceiling.
- **Upper arms:** Clench your hands into fists, bend your arms at the elbows, and flex your bicep muscles (upper arms).
- **Shoulders:** Raise them in a shrug towards your ears.
- **Back of Neck:** Press the back of your head against the floor or bed.
- **Front of Neck:** Touch your chin to your chest, avoiding tension in the back of your neck and/or head).

- **Face:** Contract face as a whole, or focus on separate features one at a time. Eyes close as tightly as possible. Forehead furrows into a deep frown. Nostrils flare and nose scrunches. Lips purse together.

Memory Aids:

Suggestions in the *Concussion Awareness Training Tool* modules and resources to help with memory loss include using a recording device during meetings and phone calls and writing reminders for tasks and appointments. Essentially, memory aids function as external storage for your brain. Even when we are operating at full capacity, it can be difficult to keep track of all the details of our daily lives. The following may be especially helpful when recovering from a concussion:

- **Applications:** Mobile phones, tablets, and computers have many free reminder apps that can be useful to remember important things.
- **Noticeboards:** Putting up a notice board in an obvious spot in your house can help group written reminders together, and be a way for those who live together to communicate.
- **Sticky notes and labels:** Whether it's reminding you where you keep your keys, to put the recycling out when you leave, or the steps to make coffee, sticky notes and labels can help trigger memories in specific places.
- **Calendars and diaries:** Especially when recovering from concussion, it's useful to use a calendar – whether electronic or one fixed on your wall – to keep track of appointments, events, or the daily tasks you've prioritized.
- **GPS route finders:** If you aren't confident finding your way to a new destination, or you are now using a new transit method during your recovery, using a GPS route finder can help.

It is important during recovery to be patient with yourself. Your brain is healing, and mental health symptoms are a normal part of that process for many people who sustain a concussion. If there is no improvement or symptoms are worsening 4 weeks after a concussion, referral to an interdisciplinary clinic by a medical or licensed healthcare professional with relevant training is recommended.

Note: This document does not constitute nor is a substitute for professional medical advice or diagnosis. The document is provided with no warranties (express or implied) with respect to its accuracy, currency or suitability, and no liability is assumed by the authors from the use or reliance on this document.

LEARNING ACCOMMODATIONS AND MODIFICATIONS FOR STUDENTS FOLLOWING A CONCUSSION

For more information about learning accommodations, see the Resources section of the Concussion Toolkit for School Professionals.



| | |
|---|--|
| PHYSICAL | |
| HEADACHES: | TIRES EASILY: |
| <ul style="list-style-type: none"> Provide opportunities to ensure student stays hydrated Allow frequent rest breaks with equipment as needed (ear/headphones, music, relaxation tapes, etc.) Limit or restrict noisy classes (music, woodworking, auto mechanics, foods/home economics, etc.) Limit or restrict noisy environments (assemblies, cafeteria, hallways, etc.) Allow the use of noise-cancelling ear plugs/headphones Allow sunglasses/hat in classroom Seat student away from window Dim light, pull shades | <ul style="list-style-type: none"> Limit time spent doing school work Allow frequent rest breaks with equipment as needed (ear/headphones, music, relaxation tapes, etc.) Allow student to leave class/school early Allow student to start school later in the day Modify the student's attendance requirements, classes, and/or timetable Reduce backpack weight Schedule activities/subjects during student's best time of day |
| SENSITIVE TO LIGHT: | SENSITIVE TO NOISE: |
| <ul style="list-style-type: none"> Allow sunglasses/hat or blue light-blocking glasses Seat student away from window Dim light, pull shades Reduce exposure to computers, smart boards, videos by offering pre-printed notes Reduce brightness on screens | <ul style="list-style-type: none"> Limit or restrict noisy classes (music, woodworking, auto mechanics, foods/home economics, etc.) Limit or restrict noisy environments (assemblies, cafeteria, hallways, etc.) Provide a quiet work space (library, learning support or counselling room, etc.) Provide a quiet place for lunch, recess Allow the use of noise-cancelling earplugs/headphones Allow student to leave class early to avoid noisy hallways |
| DIZZINESS/BALANCE PROBLEMS: | |
| <ul style="list-style-type: none"> Allow student to leave early to avoid crowded hallway Limit standing for long periods and allow student to sit or lie down as needed | |
| COGNITIVE | |
| COGNITIVE FATIGUE: | |
| <ul style="list-style-type: none"> Limit time focusing on schoolwork No new learning Allow frequent rest breaks Reduce workload Decrease academic expectations Prioritize essential schoolwork Reduce repetition of work | <ul style="list-style-type: none"> Allow for extra time to complete work, tests Provide shorter assignments, tests Allow alternative forms of testing (quiet space, oral, one-to-one, open-book, technology, etc.) Chunk information into smaller pieces Provide audio alternative for reading Schedule high cognitive demand tasks to be followed by less demanding work Allow alternative submission formats (e.g. electronic vs hard copy) |

COGNITIVE

DIFFICULTY CONCENTRATING:

- Provide a quiet place to work
- Limit time focusing on schoolwork
- Decrease distractions
- Work on one task at a time
- Chunk information into smaller pieces
- Allow for extra time to complete work
- Provide class notes
- Allow alternative forms of testing (quiet space, oral, one-to-one, open-book, technology, etc.)
- Provide shorter assignments, tests
- Provide or support use of assistive technology and software
- Provide extra support or learning assistance (TA, LA teacher, parent, peer, etc.)
- Allow preferential seating (front of class, away from windows, doors, other distractions, etc.)
- Limit or restrict noisy classes (music, woodworking, auto mechanics, foods/home economics, etc.)
- Limit or restrict noisy environments (assemblies, cafeteria, hallways, etc.)

DIFFICULTY REMEMBERING:

- Provide written instructions for tasks, homework
- Use peer tutor or partner
- Check comprehension
- Provide class notes/allow class notes for testing
- Provide or support use of assistive technology and software
- Use student agenda, communication book
- Chunk information into smaller pieces
- Provide extra support or learning assistance (TA, LA teacher, parent, peer, etc.)
- Use recognition rather than recall for testing
- Use repetition
- Use visual reminders (schedules, checklists, calendars, sticky notes, etc.)
- Use visual cues (highlighting, underlining, pictures/diagrams, colour coding, etc.)
- Use memory strategies (categorizing, associations, chunking, rehearsal, mnemonics, visualization, etc.)

EMOTIONAL

SAD/DEPRESSED/FRUSTRATED:

- Allow time for socialization
- Listen to and validate student's concerns
- Provide reassurance
- Use proactive behaviour management to encourage healthy lifestyle
- Provide safe place for student when feeling overwhelmed

- Ensure student has ready access to support services (school counsellor, school psychologist, etc.)
- Provide extra support or learning assistance (TA, LA teacher, parent, peer, etc.)
- Provide student and parent/caregiver with mental health and substance use resources
- Schedule regular check-ins with student
- Schedule regular check-ins with parent/caregiver

ANXIETY:

- Set appropriate goals with the student
- Allow student to leave class when needed
- Set a signal for the student when they need to leave the classroom
- Listen to and validate student's concerns
- Provide reassurance
- Provide safe space for student when feeling overwhelmed
- Ensure student has ready access to support services (school counsellor, school psychologist, etc.)
- Reduce workload

- Provide extra support or learning assistance (TA, LA teacher, parent, peer, etc.)
- Allow alternative forms of testing (quiet space, oral, one-to-one, open-book, technology, etc.)
- Decrease academic expectations
- Prioritize essential schoolwork
- Allow for extra time to complete work, tests
- Schedule regular check-ins with student
- Schedule regular check-ins with parent/caregiver

Additional Resources

CATT - Learning Accommodations and Modifications For Students Following a Concussion

<https://www.cattonline.com/wp-content/uploads/2023/09/CATT-Learning-Accommodations-Following-Concussion.pdf>

CATT – Medical Assessment Letter

<https://cattonline.com/wp-content/uploads/2023/09/CATT-Medical-Assessment-Letter.pdf>

CATT – Medical Clearance Letter

<https://cattonline.com/wp-content/uploads/2023/09/CATT-Medical-Clearance-Letter.pdf>

CATT – Return to Activity

<https://cattonline.com/wp-content/uploads/2023/09/CATT-Return-to-Activity.pdf>

CATT – Return to Work

<https://cattonline.com/wp-content/uploads/2023/10/CATT-Return-to-Work.pdf>

Canadian Concussion Collaborative – 4 Characteristics of a Good Concussion Clinic

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

University of Georgia – Driving After Concussion: Is it Safe to Get Behind the Wheel?

<https://cattonline.com/wp-content/uploads/2020/07/Driving-After-Concussion-Is-It-Safe-to-Get-Behind-The-Wheel-2020.pdf>

For more information and resources on concussion, please visit [cattonline.com](https://www.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>

