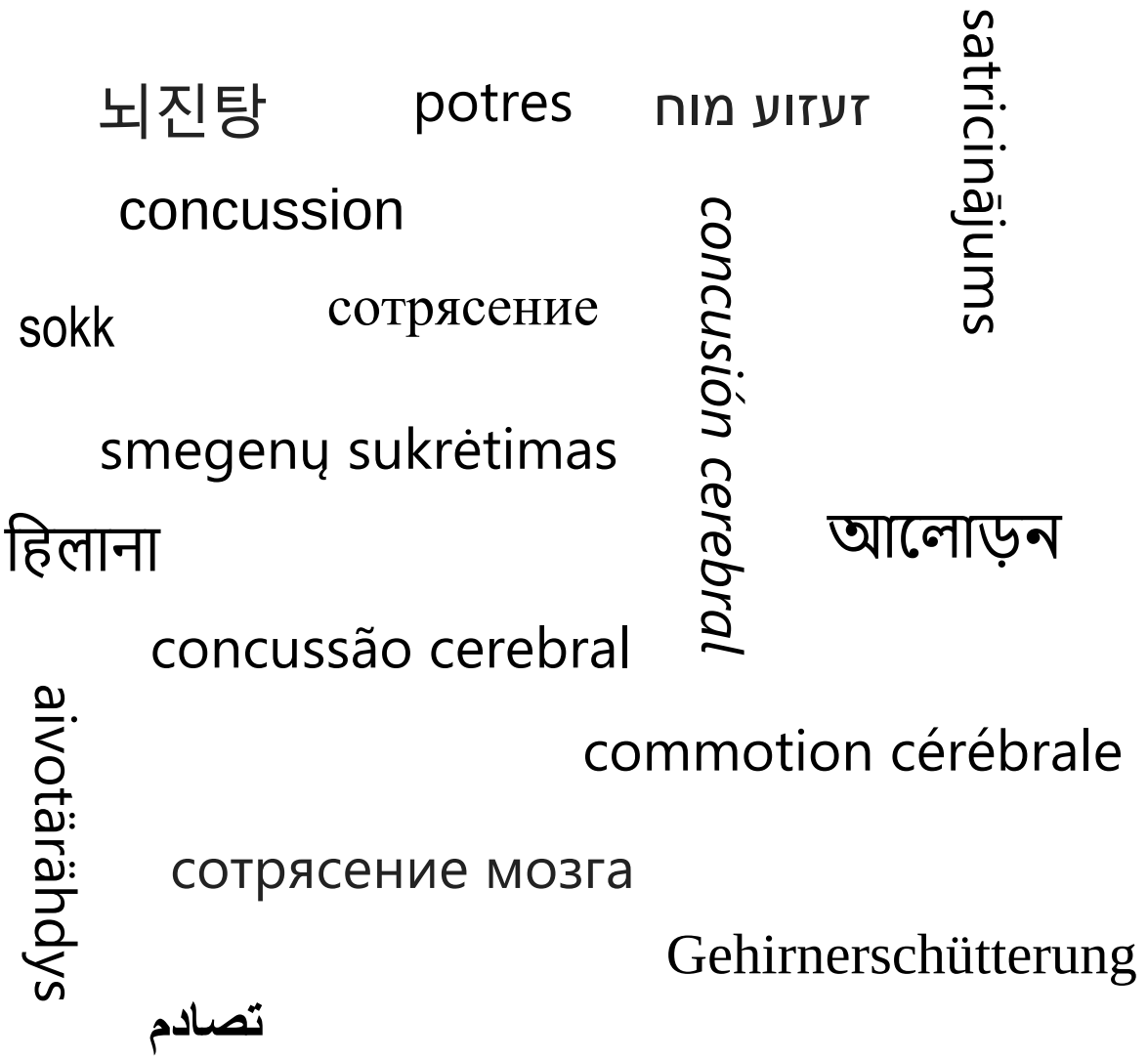
Managing Persistent Post-Concussion Symptoms



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Revised: December 2019

Read this booklet to learn:

- What post-concussion symptoms are
- How to manage post-concussion symptoms
- What resources are available for people with post-concussion symptoms

This is a guide for patients who have post-concussion symptoms. It includes information as well as strategies to help manage your symptoms and return to your normal daily routine.

The Canadian Concussion Centre, Toronto Western Hospital, gratefully acknowledge the financial support of LIUNA (Laborers' International Union of North America) for providing copies of this booklet.

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What is a concussion?

A concussion is a brain injury. It happens when there is a significant impact to the head, face, neck or other body part that causes a sudden movement of the head. It is diagnosed by a medical doctor, nurse practitioner or neuropsychologist. However, a doctor should be involved in your care from the very start to make sure you do not have other medical issues that need to be addressed.

What are post-concussion symptoms?

After a concussion, most people recover and return to "feeling normal" after a few weeks. However, around 15-25% of people will experience symptoms of concussion longer than 1 month. These are known as **persistent symptoms.**

Read below for more information about the most common persistent symptoms.

Dizziness and Vertigo

Dizziness is when you feel lightheaded, or feel faint or woozy. After a concussion you may experience persistent feelings of dizziness, which may get worse when you sit up, stand or walk.

You may also experience **vertigo**, which is a spinning or moving sensation that occurs even when you are still.

Both dizziness and vertigo can affect your balance and cause nausea.

Dizziness and vertigo, as well as changes in vision, can be caused by disturbances to the vestibular system. The vestibular system is made up of structures in your inner ear and brain. This system helps you with your sense of balance and helps coordinate smooth and controlled muscle movements, such as your eye muscles.

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Dizziness can also be caused by other factors. These include:

- migraines
- medications
- dehydration (when your body does not have enough water)
- 'postural' or 'orthostatic' hypotension (a sudden drop in blood pressure when you go from lying or sitting to standing)

In most cases, a doctor can identify and treat what's causing the dizziness. However, vertigo may be more difficult to treat and may require specific tests and therapy. Your doctor can make the required referrals.

Nausea

Nausea and vomiting (throwing up) can persist for many weeks after a concussion. These symptoms are usually caused by the vestibular system disturbances described above. You may also feel nauseous when you have a migraine.

Changes in Vision

You may experience visual changes, such as:

- double vision (diplopia)
- your eyes having trouble adjusting to moving objects (accommodation)
- changes in the clarity or sharpness of your vision (visual acuity)
- difficulty focusing on objects
- sensitivity to light (photosensitivity or photophobia)

These issues can make it difficult to read, watch TV, and use the computer.

To help with these symptoms, it may be beneficial to restrict screen time. Your doctor may also refer you to an optometrist who specializes in working with people who have visual changes after a concussion.

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Post-Traumatic Headache

A concussion can cause different types of headaches. Each one has different features:

- **Headaches with tension features** is the most common type and may be caused by stress or muscle strain. This is experienced as uncomfortable or painful pressure.
- **Headaches with migraine features** often includes very intense, throbbing pain. This type is frequently associated with other concussion symptoms, such as nausea, vomiting, or light sensitivity.
- **Rebound headaches or 'medication overuse headaches'** may happen if you take too much over-the-counter pain medication (such as acetaminophen, ibuprofen or aspirin) or opioid medication. Opioids are pain medications that your doctor or nurse practitioner gives you a prescription for, such as oxycodone, hydrocodone, codeine, or morphine.
    - In addition, taking opioid pain medication regularly may cause a physical dependence, which is when your body gets used to the opioids. This can lead to withdrawal symptoms when you stop taking the medication, including headaches.

You may also experience more frequent or more severe headaches from:

- Lack of sleep
- Stress or anxiety
- Prolonged activities with inadequate breaks
- Too much screen time (e.g. TV, computer)
- Reading

Massage therapy and acupuncture may be helpful in alleviating post-concussion headaches. To find a certified massage therapist in Ontario, visit www.cmto.com. This website also tells you which massage therapists are also trained in acupuncture.

Alternately, you can search for an acupuncturist through the College of Traditional Chinese Medicine Practitioners and Acupuncturists of Ontario at www.ctcmpao.on.ca.

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If the headaches persist, you may require treatment from a headache specialist. Speak to your doctor about getting a referral.

Heightened sensitivity to sound and tinnitus

Some people become very sensitive to sound after a concussion. Heightened sensitivity to sound is known as **sonophobia** or **phonophobia.** This is normal and generally goes away over time. If it persists, you may be helped by specific types of hearing aids that suppress certain sounds.

It is also common to have **tinnitus**, which is a ringing, buzzing or hissing noise in one or both ears. There are several possible causes, including trauma or damage to the inner ear or specific areas of the brain. It may be a constant noise, or it may come and go. Although there is no specific treatment for tinnitus, it may get better on its own. Often, people get used to the sound over time and it becomes less bothersome. This is known as accommodation.

Whiplash associated with the initial injury

About 25% of people with concussions also experience a concomitant whiplash injury. Whiplash is caused by a sudden force that stretches or tears the tendons and muscles in your neck. This leads to muscle tension, inflammation (swelling), and pain in your neck. Your neck can feel stiff, making it harder to move your head. You may also start to get headaches that go from the bottom to the top of your head. Your doctor can determine whether you have whiplash.

Whiplash can often be managed by applying heat and/or ice to the painful areas. In some cases, your doctor may recommend or prescribe pain medication.

A physiotherapist can also help to strengthen and increase flexibility to the affected muscles, through acupuncture or by recommending exercises, especially isometric neck muscle strengthening exercises. Speak to your doctor about whether physiotherapy would be right for you.

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Fatigue and Sleep Difficulties

Sleep difficulties include sleeping too much or too little, having trouble getting to sleep, or having trouble staying asleep. This can cause mental fatigue (when you feel more tired than usual) and/or physical fatigue (a feeling of weakness in your body).

Sleep issues can also influence your memory and concentration, as well as cause changes in your mood, such as feeling irritable. To learn more about getting good, quality sleep, see Page 16 for tips on how to improve your sleep.

You may also experience a sense of fatigue even if you are getting plenty of sleep. Some strategies which may help in these situations include:

- Exercising regularly (see Page 10)
- Managing your energy wisely (see Energy Conservation, Page 12)
- Relaxation and mindfulness (see Page 17)

Mood Changes

After a concussion, there may be changes in your mood. You may feel persistent sadness and/or anxiety, more irritable, and more impatient.

There are several strategies that can help you manage stress and mood changes, including exercise (Page 10) and relaxation and mindfulness (Page 17).

Some patients may need counselling or psychotherapy and others may need both psychotherapy and medication. You can talk to your doctor to determine the most appropriate follow-up.

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Changes in Memory, Attention and Other Thinking Abilities

After a concussion, you may have some trouble with your thinking (cognition). These may include problems with:

- Attention/concentration
- Memory
- Processing information more slowly
- Planning
- Organizing
- Problem solving

Certain factors may also affect your thinking. These include:

- Not getting enough good quality sleep
- Fatigue
- Pain (such as headaches)
- Changes in mood (anger, feeling irritable, sadness)
- Medications

There are a number of specific strategies designed to address these difficulties, which will be reviewed in the Cognitive Strategies section of the Handbook (see Page 11). In addition, you may benefit from the other strategies and recommendations provided in this booklet.

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Managing your Symptoms: Strategies and Recommendations

The following sections provide strategies and recommendations to help you manage your post-concussion symptoms and return to your normal daily activities. The goal is to gradually increase your physical and mental stamina and reduce your sensitivity to environmental stimuli such as noise and light.

Exercise

Physical exercise has numerous health benefits, including reducing your risk for heart disease and stroke, improving the strength of your bones and muscles, and lowering your chances of developing diabetes. It can also help improve your overall fitness level.

Exercise plays an important role in post-concussion recovery.

- Research shows that exercise promotes a sense of well-being, and helps to reduce feelings of depression and anxiety.
- Exercise can improve the quality of nighttime sleep, which will improve your mood, attention, memory, and overall fatigue level.
- Proper exercise routines can also improve your balance and posture, reducing your risk of falling and getting another concussion.

Avoiding physical activity can worsen symptoms of concussion and slow the recovery process.

Make sure you talk to your doctor first about exercises that are safest for you.

Learn what your 'threshold' is

Your threshold refers to how much you can push yourself during exercise while still keeping your symptoms at a manageable level. It is normal to experience some symptoms, such as headaches, when you first start to exercise. However, exercise should not increase symptoms to the point where you cannot perform other activities during your day.

What types of exercise can help?

If you are beginning to exercise after a concussion, it is recommended that you start with low-level, low-impact aerobic activity. It is important that the exercise is low-impact to minimize the stress to your neck and head. Aerobic activity is any brisk activity that increases your heart rate and makes you sweat. Examples of recommended aerobic activities during recovery from concussion include fast walking, swimming, stationary biking and using an elliptical trainer. You should avoid exercises that increase your risk of having another concussion, such as extreme sports or contact sports, outdoor cycling, jogging or running, or most types of martial arts (tai chi would be an exception). Avoid head-down yoga positions.

To get started, exercise for short periods of time (for example, 5-10 minutes) and gradually increase the amount of time you spend exercising each day. Your goal is to eventually exercise 4-5 times per week, for 30-60 minutes each time.

Cognitive Strategies

During your recovery, there are techniques you can use to manage changes in your thinking abilities, such as memory and attention.

Make Schedules

Schedules can help you stick to your routine and remember which tasks you need to do. An agenda or calendar can help you do this. You can:

- Post a calendar on your fridge
- Carry a small day timer with you
- Use a calendar on your mobile phone

Set Alarms

Alarms on your mobile phone or clock can help:

- Wake you up in the morning
- Remind you to take medication
- Remind you of your appointments
- Remind you to take breaks throughout the day

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Make To-Do Lists

If you have many tasks to complete during the day, making a checklist can help you remember which tasks you need to do. This can be done either on paper or on your phone:

- Place the most important tasks at the top of your list.
- Check off items once you have completed them. This will help you feel accomplished and boost your mood.
- Most cell phones have a 'Reminder' setting to help remind you to do the tasks on your list.

Organize your Tasks and Items

- Pair regular tasks with other routine activities. For example, take your medication with meals or after you brush your teeth.
- Put certain things together so you won't forget them. For example, keep your keys on a hook by the door so you never forget them when you leave the house.
- Keep things in familiar spots. Having a spot for everything in your house can help you remember where things are and avoid losing or forgetting important items.

Energy Conservation

It is common to feel more tired than usual when you are recovering from a concussion. Fatigue can often affect your ability to complete activities in your day that are important and necessary. Practicing the **Four P's of Energy Conservation** can help you complete daily activities and return to your normal schedule.

1. Plan

- Complete your most demanding activities at times of the day when you have the most energy. For example, some people find they have most energy in the morning so they complete tasks requiring more energy at this time.
- Plan to switch between light and heavy tasks. For example, grocery shopping requires a lot of mental and physical energy. Try to balance that with a less demanding activity, like taking a shower or going for a walk.

- Set small goals each day to help you gradually increase your activity and help you build up to what you really need and want to do.
- Plan rest breaks into your day. It is important that you rest before you are exhausted. To rest, try a relaxing activity. Resting does not mean sleeping – try to keep napping to a minimum because this can make it harder to sleep at night. Relaxing activities can include short walks, having a cup of caffeine-free tea, or doing any type of calming task.
- Make sure you have all the required equipment or supplies before beginning an activity.
- Schedule activities days or weeks ahead to avoid doing too much at once.
- Have a back-up plan – extreme fatigue can be unexpected. If possible, have friends or family available to assist with child-care or important errands.

2. Prioritize

- Prioritize rest breaks. This means making the time to rest so that you will have the energy to complete activities.
- Decide which tasks are most important and focus on those first.
- Determine which tasks you can complete at a later time or date. It's okay if you have to put off tasks until another day.

3. Pace

- Complete activities at a slower speed. Try to avoid rushing through tasks.
- Give yourself extra time to complete tasks and take breaks often.
- Try breaking down tasks into smaller steps so you can take breaks when needed.

4. Position

- Consider performing tasks in a seated rather than a standing position.
- Do not bend so that your head is lower than your chest. If you have to reach to pick something up, bend with your knees rather than your hips so that your torso remains upright.

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- Organize your space so that commonly used items are closer and easier to access.
- For example: If you spend a lot of time in a family room or living room, try to have a table next to your chair. In the kitchen, keep cooking oil, salt, or other frequently used non-perishable food items on the counter. Try to store the foods, dishes and pots that you commonly use in the cupboards and drawers that are easiest to reach.

Try Applying These Strategies to your Life!

How can you practice the Four P's in your daily life? List one way for each strategy:

PLAN:

Example: If you are a parent, consider whether there is a friend or family member you could talk to about helping you out with your children at times.

_____

PRIORITIZE:

Example: Try to think of a task that could be postponed if necessary because you are already too busy or too tired; such as doing laundry, responding to e-mails or getting a haircut.

_____

PACE:

Example: Consider making changes to your schedule to avoid rushing, such as waking up a bit earlier in the morning.

_____

POSITION:

Example: Think of ways you can make a task easier by sitting rather than standing when you are performing a task, such as using a stool at the kitchen counter.

_____

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Returning to Daily Activity

It is recommended to start returning to your daily activities 1 to 2 days after a concussion. Daily activities can include cooking, reading, or going back to school or work (work is discussed in more detail in the following section). Although this may feel very difficult because of your symptoms, current research shows that people who go back to their daily activities early on and increase their activity level gradually over time improve faster than those who don't.

Just as with exercise, the key to success involves figuring out your activity 'threshold' (the amount of activity you can do without causing a big increase in your symptoms).

In this section, we will talk about some ways you can begin to return to your previous home and extracurricular activities safely.

Gradually increase activity

Keep in mind that when you first perform an activity after a concussion, it is normal to experience some symptoms.

Here are steps to help you increase your activity level without exceeding your threshold:

1. Set a cognitive and physical goal for yourself each day. For example, a cognitive goal could be reading a newspaper or completing a crossword for 15 minutes, while a physical goal may be riding a stationary bike for 10 minutes.
2. Increase this goal each day, either in intensity or the length of time. You should increase the amount of activity each day, regardless of symptoms, even if it means only by 30 seconds. The key is to do more than the day before.
3. Gradually increase the number of activities you do each day. For example, you may start to do laundry once a week, then twice a week the next week, or you can start with washing the dishes after 1 meal and progress to 3 meals.

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Gradually increase the distractions in your environment

When reintroducing an activity, start in environments where you won't be distracted. Once you feel able to complete this activity, try completing the activity in an environment with some distractions. For example, if you are starting to cook again, cook in a quiet kitchen. As you get more comfortable, you may want to cook while listening to music.

Modify the task

When you are first returning to your daily activities, try to break down tasks so you can take breaks in between. Over time, you can build up to doing the entire activity at once.

Begin with single tasks before you try completing multiple tasks at once. You may also want to try completing simple tasks before attempting more difficult tasks.

Getting Better Sleep

What happens when you do not get good quality sleep?

When you do not get good quality sleep, you may:

- Notice changes in your attention, memory and problem solving skills
- Have trouble learning new things
- Feel more irritable
- Get frustrated more easily

Tips for Getting Better Sleep

Get on a regular sleep routine

- Try to wake up and go to sleep at the same time every day, even on weekends!
- Establish a soothing bedtime routine. You need to figure out what works for you. Some examples are doing deep breathing exercises or meditation, reading a book rather than watching TV and drinking a caffeine-free beverage.
- If you become very tired during the day, you may find it useful to take a nap. If so, try to nap for no more than 30 minutes and at least 6 hours before you normally go to bed.

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- Incorporate regular physical activity into your day. Try to build up to 30 minutes of reasonably vigorous activity, such as fast walking, but remember to stay within your own person threshold. In addition, try to avoid exercising within 2 hours of sleep.
- Avoid caffeine 4-6 hours before bedtime.

Optimize your sleeping environment

- Sleep in a cool, dark, and comfortable room. You may want to use blackout blinds and a fan for a neutral sound.
- Try to only use your bed and bedroom for sleeping. Avoid doing work or watching TV in your room.
- Try not to have any electronics in your room (such as a TV or computer). If your phone is in your bedroom, keep it on silent.
- Remove large alarm clocks – the bright light can interrupt your sleep and can lead to "clock-watching", which may cause worry about getting enough hours of sleep.
- *f.lux* is an app that changes the colour of a computer screen to match the time of day and it is designed to prevent sleep disruption if you need to use the computer in the evening.

Medications

- If you are still having trouble sleeping even after trying all the strategies listed above, talk to your doctor about sleeping medications. They will often prescribe a mild medication first, such as melatonin, and only progress to a stronger medication if needed.

Relaxation Techniques

It is important to manage stress and take care of your emotional health when you are recovering from a concussion. One way you can do this is by practicing relaxing activities.

Some ways you can practice relaxation are:

- diaphragmatic (or "belly") breathing
- mindfulness meditation
- progressive muscular relaxation
- yoga (remember to avoid head-down positions – Page 11)

Doing activities in a quiet space and choosing activities that you enjoy can also help you relax.

Mindfulness

What is Mindfulness?

Mindfulness is a formal relaxation skill that requires you to focus your attention on the present moment and to accept the feelings and thoughts that you experience at these times without judging yourself. It requires you to stop and take the time to notice what is happening inside and outside of your body.

During mindfulness sessions, you are asked to focus on a specific sound, object, visualization, breathing pattern or movement (known as the 'anchor'). The goal is to bring your attention to that anchor rather than on your thoughts or worries.

Mindfulness is a skill that you learn and practice. Like exercise or healthy eating, mindfulness requires ongoing commitment and perseverance.

How can mindfulness help?

Research shows that practicing daily mindfulness has a positive impact on the brain. Regular mindfulness practice can reduce certain concussion symptoms, such as feelings of sadness, anxiety, poor memory and lack of sleep and can increase one's overall sense of well-being.

How can I practice mindfulness?

When you are ready to learn how to practice mindfulness, it is strongly recommended that you participate in a mindfulness course taught by certified practitioners. By taking a class, you will learn how mindfulness works, can share your experiences, and get tips on how to continue practicing every day. For help finding a mindfulness program in

your community, contact the Toronto Western Hospital's Patient and Family Library or see the Helpful Resources section at the end of this booklet.

Mindfulness can be incorporated into your daily activities. You can be mindful by focusing on a task in the present moment. For example, you may choose to be mindful while washing the dishes, walking to work, or taking a shower. You may also give yourself "mindful cues" throughout the day. Mindful cues are specific actions that cause you to focus on the present moment, such as when you open a door.

Strategies for Returning to Work

A graduated return to work program is an important part of therapy for people experiencing persistent post-concussion symptoms. 'Graduated' means that work will be slowly increased in terms of:

- physical demands
- cognitive demands
- level of stimulation in the environment
- total amount of time spent working

Current evidence shows that people who return to work experience a range of benefits, which improves their mood, overall health and quality of life. However, keep in mind that work which puts people at risk of sustaining another concussion requires special attention.

Begin at Home

If you find it hard to complete tasks that are necessary for returning to work, try practicing the tasks at home first. For example, if you need to use a computer for your job, practice using the computer at home.

Gradually build up your tolerance for the activities by increasing the amount of time spent practicing at home each day. Once you are able to complete necessary work tasks in your quiet home environment, try moving to a more distracting environment, such as a busy coffee shop.

Workplace Accommodations

Some workplaces have staff who can help you make necessary workplace modifications. These might include making changes to the physical environment, or creating a graduated return-to-work plan.

However, in many cases, you will need to create a plan on your own and talk directly with your supervisor or employer.

Plan for Gradual Return to Work

Keep in mind that if the physical demands of your work put you at risk for having another concussion, these activities may need to be avoided altogether when planning your return to work. Any work which puts people at risk of sustaining another concussion requires special attention.

Work with your employer when developing a return-to-work plan so they know what to expect when you return. This plan will also depend on your specific type of work and your employer's ability to support the plan. Things to think about when developing your plan are:

- Are you able to tolerate working a minimum of 3 days per week, for at least 2 hours a day? This is generally considered a good time to initiate a return to work.
- Can you gradually increase the number of days and hours you spend at work as you get more comfortable?
- How often can you take rest breaks? How long can the rest breaks be? A rest break can look different for different people. For example, it might involve getting up to walk around the office, sitting in a secluded dark room for 5-10 minutes or taking a small stretch break (2-3 minutes) at your desk.
- Are there coworkers who can help or cover for you when you are feeling very fatigued or having trouble concentrating on work tasks?

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Gradually Increase Tasks

If there are tasks that are too demanding when you first return to work (such as heavy lifting or tasks involving a lot of concentration), slowly add them to your list of tasks as you start to feel better. The goal is to work towards completing all the tasks you were doing before your injury.

Modify your work environment

If you're having trouble with your vision:

- Change the lighting. For example, if there is fluorescent lighting, try increasing the amount of natural light with windows or bring in a small desk lamp.
- Use large print or text for written documents.
- Use an antiglare screen, a glare guard or a coloured, tinted shield for the computer screen.
- Limit computer and screen use if possible – if it cannot be avoided, be sure to take lots of breaks.

If you're having trouble concentrating:

- Find ways to reduce distractions in the work area. For example, if noise is a distraction, book a private room for difficult tasks, use a white-noise machine, wear a noise-reducing or noise-eliminating headset, or listen to soothing music.
- Organize your work space to reduce clutter.

If you're having trouble with your memory:

- Make daily to-do lists
- Use one specific method to keep track of your schedule; i.e. an electronic calendar or paper calendar
- Set phone alarms
- Schedule weekly meetings with your supervisor to help you stay on track and achieve your goals
- Get written notes or audio-taped recordings from meetings
- Get written instructions from supervisors and coworkers
- Post reminders or instructions close to equipment you use often

Questions to Ask Health Care Specialists

Talk to your doctor about your need for additional treatments before you seek further help. Many health care providers claim to be specialists in the treatment of post-concussion symptoms. They may say they have a specific focus or program designed to minimize or get rid of certain symptoms, such as dizziness or balance problems. However, not all health care providers have this training. It is important to make sure a specialist is right for you.

Before looking for a health care provider, talk with your doctor about what services you need so that you can look for an individual with the right expertise. For example, physiotherapists who specialize in treating patients with post-concussion symptoms should have training in areas such as vestibular rehabilitation, neuro rehabilitation, or advanced manual therapy for any associated whiplash.

Some optometrists also have advanced education in treating people who have had a brain injury. For a list of optometrists with this training in your area, visit the Neuro-Optometric Rehabilitation Association's website (https://noravisionrehab.org) or the College of Optometrists in Vision Development's website (https://www.covd.org/default.aspx).

Keep in mind that most of these services are private, which means that you will be expected to pay out of pocket for each session. In some cases, you may have insurance or health benefits which cover all or some of the costs, but you will need to check with your own insurance providers and the health care providers you choose.

Below are some questions you can ask a potential physiotherapist or optometrist to help determine whether they are right for you and your concussion recovery. It is also helpful to write down the answers and to bring a family member with you to your appointments. They can help you remember what was discussed and help you decide which specialist is right for you.

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Questions to ask a physiotherapist:

- Do you have post graduate or advanced training in any of the following areas:
    - assessment and treatment of concussion or post-concussion symptoms?
    - vestibular rehabilitation?
    - neuro rehabilitation?
    - advanced manual therapy for whiplash?
- How much do you charge for each session? How long is each session?
- How many sessions will I need?
- Do you charge a fee for writing and sending reports to my health care team?

Questions when choosing an optometrist:

- Do you treat patients who are having visual problems from a concussion that occurred more than 1 month ago?
- Can you tell me what kind of treatment interventions you offer to post-concussion patients? Their responses might include prism glasses, special eye exercises, filters, or vision therapy.
- How much do you charge for each session?
- How long is each session and how many sessions will I need?
- Do you charge a fee for writing and sending reports to my health care team?

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Helpful Resources

The University Health Network tries to keep patient resources up-to-date, but some information may change. Please contact any agencies or organizations that may be listed below to make sure the information is correct or to find out more about their services.

For help finding resources in your community, contact the Toronto Western Hospital's Patient and Family Library at 416 603 6277 or twpfl@uhn.ca.

Workshops and On-Line Resources

Canadian Concussion Centre (CCC)

- Website: https://www.uhn.ca/KNC/Research/Projects/Canadian_Concussion_Centre

The Canadian Concussion Centre offers education and support workshops four times a year. There is no cost for these sessions and you are encouraged to bring a relative or friend. The workshop provides information and education on the treatment and management of post-concussion symptoms. It also provides a space for people with post-concussion symptoms to share their experiences.

For the schedule of upcoming workshops, click on 'Patient Support' on the website's home page. Under 'Attend Our Next Workshop' click on "When Symptoms of Single and Multiple Concussions Persist: An Education and Support Workshop".

Past sessions can be viewed online at: https://www.uhn.ca/KNC/Research/Projects/Canadian_Concussion_Centre/Pages/patient.aspx

Ontario Neurotrauma Foundation

- Website: https://braininjuryguidelines.org/concussion

This website lists the *Guideline for Concussion/mTBI and Persistent Symptoms*. The *Guideline* provides information to health care providers who provide care and services to adults who have had a concussion or mild traumatic brain injury. Click the "For

Patients" button to learn more about the *Guideline*. You may wish to bring this with you when speaking to your healthcare providers about your care.

Concussion Ed – Parachute's Concussion Education App

- Website: http://horizon.parachutecanada.org/en/article/concussioned-parachutes-concussion-education-app/

Parachute Canada is a national charity that promotes evidence-based resources and tools to reduce preventable deaths and injuries. It has created a free concussion app for parents, teachers, coaches and athletes. The app provides education about concussion and post-concussion care, from prevention to management.

ABI 101: Steps to Success Series (St. Joseph's Healthcare (London) Centre)

- Website: https://www.sjhc.london.on.ca/concussion-mild-traumatic-brain-injury/treatment-programs

Visit this website to watch videos on how to manage different symptoms, including planning and pacing, sleep, memory, and coping with anger and mood changes. You can also hear stories from others who have experienced concussions.

Centre for Clinical Interventions (CCI)

- Website: https://www.cci.health.wa.gov.au/Resources/Looking-After-Yourself

This website has many free workbooks and modules to help you learn more about how to manage symptoms that affect your mental health. It covers topics such as depression, anxiety, and sleep. There are also audio files and phone apps available.

BRAVE Comics – art by Kanika

- Website: http://www.bykanika.com/brave.html

This comic series is a firsthand account of what it means to live with a concussion.

Support Groups

Ontario Brain Injury Association (OBIA)

The OBIA is a provincial organization that offers online concussion support groups, one-on-one peer support programs, and a telephone support line (call 800-263-5404).

- Website: http://obia.ca/concussion/

Brain Injury Society of Toronto (BIST)

BIST is a community organization that offers online and in-person support groups and programs in Toronto.

- Website: http://www.bist.ca

Toronto Drop-In Support Group: Depression and Anxiety

The Mood Disorders Association of Ontario offers a free drop-in support group for people living with both depression and anxiety. You do not need a formal mental health diagnosis from a physician to attend the groups.

- Free telephone support is also available by calling 1-888-486-8236.
- Visit this link for their meeting schedule: http://www.mooddisorders.ca/event/toronto-drop-in-depression-and-anxiety

Mindfulness-Based Stress Reduction Programs

Many hospitals in Toronto offer mindfulness-based stress reduction programs. Please note some of these programs may have a small fee to participate in the program. You may also need to get a referral from your health care provider.

Please contact the programs directly for more information.

Toronto General Hospital (University Health Network)

- Email: mbsr-tgh@uhn.ca

Christine Sinclair Ambulatory Care Centre (Bridgepoint Sinai Health System)

- Phone: 416 461 8252 ext. 2371
- Website: http://www.bridgepointhealth.ca/en/what-we-do/Outpatient-Care.asp

North York General Hospital

- Website: http://www.nygh.on.ca/Default.aspx?cid=1210&lang=1

Women's College Hospital

This is a mindfulness meditation program for women with a medical illness or mental health issue.

- Phone: 416 323 6400 ext. 5785

- Website: https://www.womenscollegehospital.ca/assets/pdf/mentalHealth/MBSR_Information_January2018.pdf

Mindfulness Toronto

There are also many programs offered through private providers in the community. Find a listing of some options at the Mindful Toronto website: https://www.mindfultoronto.net/mindfulness-courses-toronto/

Mobile Apps

The apps below are available from your smartphone's app store. Some of these apps may have a cost. The benefit of using an app is that you can participate in guided meditation at any point of your day, wherever you are. Apps can also be used to help you track your sleep. **Important:** These apps are not a substitute for professional medical advice. You should not use mobile health applications to diagnose or treat any health problems or illnesses without talking to your health care provider first.

Mindfulness Apps

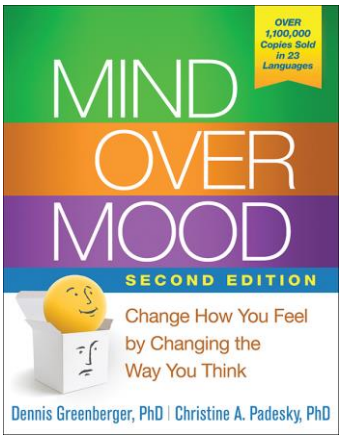
	Take a Break! By: Meditation Oasis	Available on the App Store	GET IT ON Google Play
	One Moment Meditation (OMM) By: OMM Training	Available on the App Store	GET IT ON Google Play
	Smiling Mind By: Smiling Mind	Available on the App Store	GET IT ON Google Play

See the link below for the five top-rated mindfulness apps:
https://www.mindful.org/free-mindfulness-apps-worthy-of-your-attention/

Sleep Apps

	Insight Timer – Meditation for Sleep and Anxiety By: Insight Network Inc	Available on the App Store	GET IT ON Google Play
	CBT-i Coach By: US Department of Veteran Affairs	Available on the App Store	GET IT ON Google Play
	Relax and Rest Meditation By: Meditation Oasis	Available on the App Store	GET IT ON Google Play

Books



Mind over Mood: Change How You Feel by Changing the Way You Think (2nd Edition)

By: Dennis Greenberger and Christine Padesky

This book can help you learn more about cognitive behavioural therapy (CBT) and how you can apply CBT strategies to your life. Contact the Toronto Western's Patient and Family Library to find out where you can get a copy.

Community Resources

The **Toronto ABI Network** connects people who have had a concussion or more severe traumatic brain injuries to community-based services. Visit their "For Individuals/Families" page to learn more about concussions and how to access specialized brain injury services across the Greater Toronto Area (GTA).

- Website: http://www.abinetwork.ca/
- Phone: 416-597-3057

For individuals who live outside the GTA, The Local Health Integration Network (LHIN) has designated System or ABI Navigators who can help link you to appropriate local services. To find the Navigator in your area, please follow this link for a list of navigators:

http://www.abinetwork.ca/uploads/Image/PROVINCIAL_ABI_NAVIGATORS_Contact_List_September_2018.pdf

If you don't know which region you are a part of, go to the following link and type in your postal code under "Find Your LHIN": http://www.lhins.on.ca/

Telehealth Ontario is a free, confidential service you can call to get health advice or information from a Registered Nurse, 24 hours a day, seven days a week.

- Phone: 1-866-797-0000

Connex Ontario provides free and confidential mental health services information. Information and Referral Specialists will answer your call, email, or webchat from anywhere in Ontario, 24 hours a day, seven days a week.

- Website: http://www.connexontario.ca
- Phone: 1-866-531-2600

Information about Handbook Development

This handbook was developed using up-to-date, evidence-based information. The information has been adapted from:

- Ontario Neurotrauma Foundation Guidelines for Managing Persistent Symptoms (https://braininjuryguidelines.org/concussion/)
- UHN Concussion Education Symposium (https://www.uhn.ca/KNC/Research/Projects/Canadian_Concussion_Centre/Pages/patient.aspx)
- Parachute Canada

Health care professionals that work with people and patients who have had concussions have provided input and feedback for development of this handbook.

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