

# Guideline for Concussion/Mild Traumatic Brain Injury and Persistent Symptoms

3<sup>rd</sup> Edition - for adults, +18 years of age



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## Patient Version

This guideline has been created to help with management of concussion/mild traumatic brain injury (mTBI). It is only for management for adults over 18 years of age. The guideline can be used by patients when speaking with healthcare providers about their care. It covers getting a diagnosis, managing symptoms in the early phase (acute) and management in the longer recovery phase (persistent symptoms). It is based on up-to date, quality research evidence, the expertise of providers and the input of patients.

## 5) Managing Persistent Symptoms

Talk to your doctor if you have persistent symptoms after a concussion/mTBI. You will need to have a physical exam as well as an exertion test, to find out how different levels of physical activity affect your symptoms.

Symptoms of concussion/mTBI are sometimes linked to other conditions, such as depression, anxiety, irritability, headache, poor concentration, sleep problems, dizziness and fatigue.

Sometimes symptoms can also sometimes affect each other. For example, pain that persists over a long time can cause symptoms, such as depression and sleep problems, to continue or get worse.

For this reason, when deciding on the best way to manage your persistent symptoms, your doctor will consider many factors, including any emotional distress, fatigue, or pain you may be feeling.

The aim of treatment is to improve your ability to function in your daily life. Depending on the symptoms you are having, you might need to see your doctor or nurse practitioner every few weeks to assess if your symptoms are improving, persisting, or getting worse.



Having the support of your family and friends during this time will be important as you adjust to life after your injury. For example, you may want to consider having a friend or family member with you at your appointments, to help you communicate with your healthcare provider, and to remember their instructions.

It is also a good idea to slowly add regular, mild exercise as you return to your usual activities and life roles. It is important to add these activities gradually over time so they do not bring on new symptoms or make your symptoms worse. Your healthcare providers can help you with finding that right balance.

## When your doctor or nurse practitioner might involve other providers

If your doctor or nurse practitioner becomes concerned that you are not recovering as expected, it will be important for them to involve other healthcare providers who can help manage your symptoms. Concussion/mTBI can involve **many** different health care providers who should all work together to help manage your symptoms.

Other healthcare providers play an important role in managing persistent symptoms. After a few weeks, if your symptoms are not improving, your doctor will refer you to other healthcare providers as needed.

Your doctor will treat your symptoms in a coordinated way. Referral to other providers will depend on your injury, symptoms, previous medical conditions, and the results of your medical exam and tests.

Referrals may include:

- For symptoms such as depression or anxiety, you may need to see a mental health specialist.
- For symptoms such as physical or cognitive difficulties, you may need help from different allied rehabilitation providers. These include an occupational

therapist, physiotherapist, speech language pathologist, chiropractor or psychologist, to name a few.

- In some cases, it may be necessary for you to go to a clinic that specializes in concussion/mTBI.
- Assessment to find out if you need accommodations when you return to work, school, family and day-to-day activities

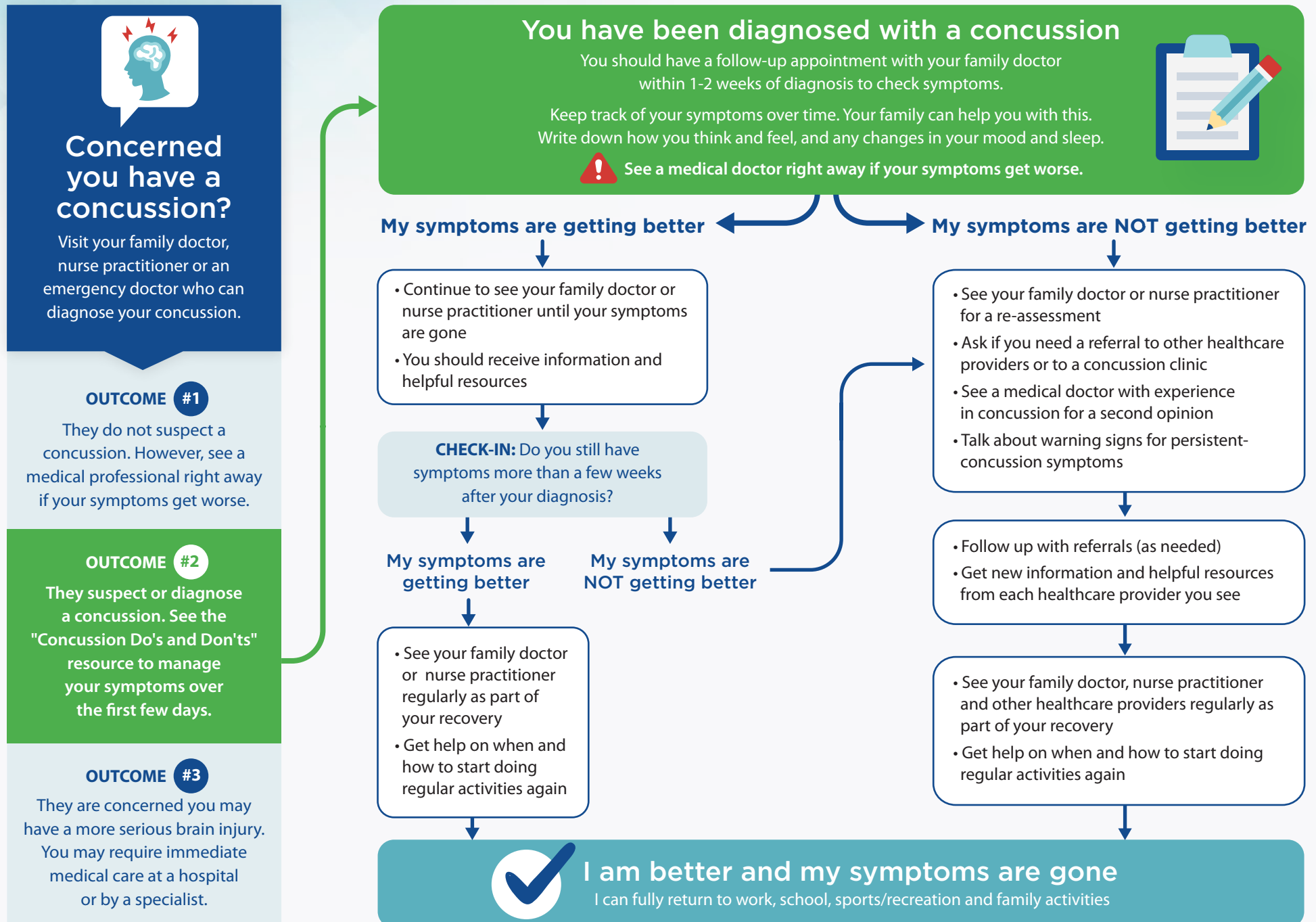


Symptoms can interact with other symptoms, and this can make it more difficult for recovery. This is different for each person, so your healthcare providers will take an approach that is specific to you.

This guideline has been created to help management of persistent symptoms after concussion/mTBI. The following sections look at the most common symptoms. They also each contain tools that can help with specific symptom management, for example headache.

## TOOLS AND RESOURCES

- ✓ [Patient Care Pathway](#)
- ✓ [Appendix 2.2 Parkwood Pacing Graphs](#)
- ✓ [Appointment Tracker](#)
- ✓ [Referrals for Persistent Symptoms](#)



# Appendix 2.2

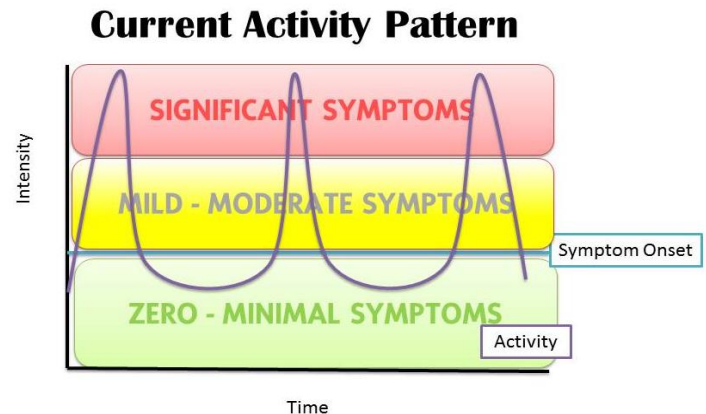
## The Parkwood Pacing Graphs



### The Pacing Graphs Explained

The green (safe zone) represents when you are symptom-free, or your baseline symptoms. The red (danger zone) represents when your symptoms are increased.

**Your Current Activity Pattern** may look like this if you continue to work, study, exercise, and in effect push through your symptoms into the 'red zone'. Unfortunately, you end up crashing and may need hours or days to return to baseline.

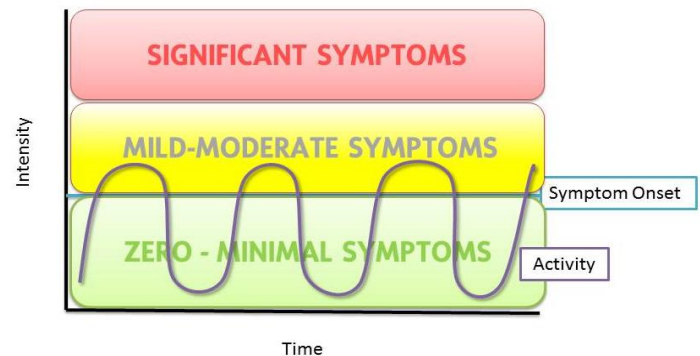


**Your Goal:** To gradually increase activity tolerance without significantly increasing symptoms or crossing the symptom threshold (into the 'danger zone'). Therefore, planning and pacing of activities is very important. You need to find the right level of activity whereby your symptoms are either eliminated or manageable, and then as your symptoms are better controlled, you can gradually increase your activity level.

You should aim to remain below your significant symptom threshold to promote recovery.

**Use your timer** to set time restrictions for activities to ensure that a task is stopped soon after symptom onset (i.e. if symptoms increase by 2-3/10 and then return back to baseline within 30-60 min, this is an appropriate amount). This will allow you to monitor your response to activity and teach you how to self-pace and self-monitor. You need to challenge the system in a manageable way in order to change it.

### Persistent Symptom Target Activity Pattern



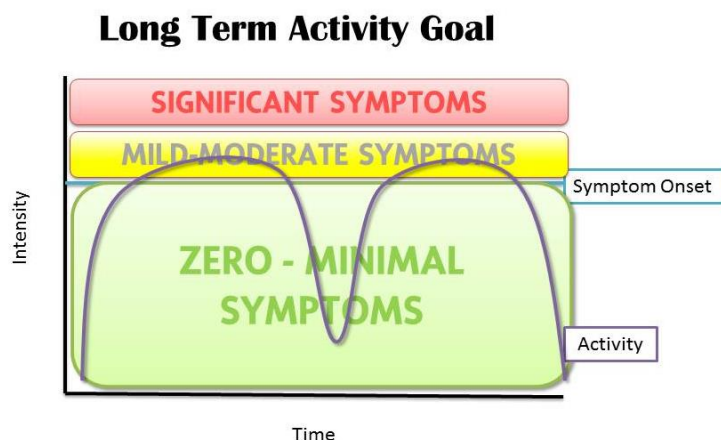
### Additional Strategies

- Start with shorter bouts of exercise or activity with rest in between OR
- Try switching between different types of activities (e.g., switching from reading to walking).
- **Doing nothing at all will not promote recovery, but doing too much each day may cause prolonged symptoms.** Therefore, completing structured, paced activities throughout the day with rest breaks as appropriate is ideal.

- **Use a Planner/Agenda/Technology**

- Plan your day in advance. This promotes scheduling of necessary rest breaks into your day, and activities across a number of days, rather than trying to ‘push through’ and get things all done at once.
- **If you have memory issues**, an agenda or technology aid may assist you, with remembering appointments, upcoming tasks/commitments and sending out reminders (in the case of technology solutions).
- **Track your activities** to help you determine any cause and effect or patterns of setbacks which may occur during your recovery. Tracking activities and symptoms in the notes/journal/agenda can also help with determining if there is a relationship between certain activities and symptom onset.

Using strategies to plan and pace your day will help you reach your **long term activity goal** to be able to engage in activities for longer periods of time without making your symptoms significantly worse, and eliminates the need for prolonged recovery time.



## Using a Timer for Planning & Pacing

**What is it?** A timer on your microwave/oven, cellphone, or a digital timer from the dollar store should have an alarm/beep/light that notifies you when the set time has elapsed.

**Why?** A timer is very important for recovery and for helping you get back doing the day-to-day activities you did before your injury. After brain injury, you have or will experience various symptoms which may be worsened by overstimulation. Overstimulation may include too much “going on” (e.g., sights and sounds) for the brain to process. It is important for you to learn to recognize how much overstimulation it takes to bring on your symptoms (e.g., headache, tremor, fatigue, etc.).

Temporal (time) awareness in brain injured patients may be disrupted as well, resulting in individuals “pushing through” symptoms to finish tasks. Additional challenges may include difficulty starting/stopping activities and over or under-underestimation of the passage of time. A timer is a good way to promote pausing, rest, and evaluation of symptoms and to give the brain a break before the symptoms become problematic. It also helps to “reset” your internal clock, as time estimation skills often improve with continued use of a timer.

**How to use it:** Set a timer for a defined amount of time (e.g., 20 minutes), and then take a break from the task for a defined amount of time (e.g., 10 minutes). Breaks should consist of resting or doing something that encourages focus on something that is not up close. For example, if you read for 20 minutes, then perhaps take a walk for 10 minutes, rest or grab a healthy snack. This will give your brain the break it needs for recovery and to prevent onset of symptoms.

**How to progress:** Over time, longer work periods (relative to rest), may be established using a timer and increasing the on-task time in increments of 5 minutes every few days. Your goal is to work relatively symptom-free or without a lasting increase in symptoms.

### Summary

- Many patients return to activities too quickly, or participate in symptom provoking activities for too long.
- We encourage you to participate in activities below the level of symptom onset in order to gradually build tolerance. As tolerance increases, symptoms may not occur as quickly, and many patients begin to recover and have less symptoms as time progresses.
- Stay conscious of the significant symptoms zone (red), even when symptoms begin to subside, as it is easy to slide into old habits of pushing through symptoms.



## Appointment Tracker

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This chart can be used to record the information for your appointments. In the last column you can write when you should follow-up, e.g. three months, etc. If it is weekly, write new appointments in a new row.

Name of healthcare provider & clinic	Phone Number	Address	Appt date	For (e.g. physiotherapy, neuropsychology)	Follow-up in


**Questions for:**

**on Date:**

Here is where you can list any specific question you have for each therapist.

1.	
2.	
3.	

4.
5.

**Questions for:**

**on Date:**

1.
2.
3.
4.
5.

If you need more space for appointments and questions, you can start with a new copy of the form.

## Referrals for Persistent Symptoms

It can take many different providers to manage and treat persistent symptoms, because no one expert can help with all your symptoms. Regulated Healthcare Providers each play a different role, depending on their training and profession's rules. You may be referred to one of the below providers by your Doctor, Nurse Practitioner or Concussion Clinic. This will depend on the type of your persistent symptoms and how severe they are. In some cases, you may not see any of these providers but in other cases you may see more than one.

Specialist / Professional Expert	For the following Persistent Symptoms:
Audiologist	<ul style="list-style-type: none"><li>• Persisting tinnitus</li><li>• Sensitivity to sound</li></ul>
Chiropractor	<ul style="list-style-type: none"><li>• C-spine dysfunction and neck pain</li><li>• Some dizziness, balance or postural issues</li><li>• Persisting headache not responding to other therapies</li><li>• Requiring support returning to physical activities</li></ul>
Ear, Nose and Throat Physician	<ul style="list-style-type: none"><li>• Persisting tinnitus, sound sensitivity, hearing loss</li><li>• Disorders of taste/smell, disorders of motor speech/swallowing</li><li>• Treatment-resistant vertigo, dizziness, nausea</li></ul>
Kinesiologist	<ul style="list-style-type: none"><li>• Requiring support returning to physical activities</li><li>• Dizziness and vestibular issues</li><li>• Physical fatigue</li><li>• Headache</li></ul>



<b>Specialist / Professional Expert</b>	<b>For the following Persistent Symptoms:</b>
<b>Massage Therapist</b>	<ul style="list-style-type: none"> <li>• Headache</li> <li>• Muscular issues</li> </ul>
<b>Neurologist</b>	<ul style="list-style-type: none"> <li>• Seizures, movement disorder or focal neurological deficits</li> <li>• Cognitive fatigue and confusion, sleep difficulties</li> <li>• Treatment-resistant post-traumatic headaches</li> <li>• Disorders of taste/smell, disorders of motor speech/swallowing</li> <li>• Requiring decisions about return to learn, school, work, and play</li> </ul>
<b>Neuro-ophthalmologist</b>	<ul style="list-style-type: none"> <li>• Vision loss, blurry vision/diplopia</li> <li>• Headache</li> <li>• Persisting symptoms of post-trauma vision dysfunction</li> </ul>
<b>Neuropsychologist</b>	<ul style="list-style-type: none"> <li>• Persisting cognitive deficits/fatigue impacting function, sleep, performance issues.</li> <li>• Requiring support returning to school, work, normal activities</li> <li>• Persistent depressive and anxiety symptoms,</li> </ul>



<b>Specialist / Professional Expert</b>	<b>For the following Persistent Symptoms:</b>
	<ul style="list-style-type: none"> <li>• Sensitivities to light and sound</li> <li>• Sports performance issues</li> <li>• PTSD and suicidal ideation</li> </ul>
<b>Neurosurgeon</b>	<ul style="list-style-type: none"> <li>• Structural brain or spine injury</li> </ul>
<b>Nurse Practitioner</b>	<ul style="list-style-type: none"> <li>• Requiring decisions about return to learn, school, work, and play</li> <li>• Physical fatigue, sleep difficulties</li> <li>• Headache</li> <li>• Sensitivities to light and sound, vestibular abnormalities, dizziness, nausea and/or vomiting</li> </ul>
<b>Nurse</b>	<ul style="list-style-type: none"> <li>• Physical fatigue, sleep difficulties</li> <li>• Headache</li> <li>• Sensitivities to light and sound, nausea and/or vomiting</li> </ul>
<b>Occupational Therapist</b>	<ul style="list-style-type: none"> <li>• Requiring support for integration to school or work and day-to-day activities</li> <li>• Cognitive deficits</li> <li>• Fatigue (mental/cognitive)</li> <li>• Sleep difficulties</li> </ul>



<b>Specialist / Professional Expert</b>	<b>For the following Persistent Symptoms:</b>
	<ul style="list-style-type: none"> <li>• Co-occurring orthopaedic injuries</li> </ul>
<b>Optometrist</b>	<ul style="list-style-type: none"> <li>• Dizziness/balance</li> <li>• Vision loss, blurry vision</li> <li>• Sensitivities to light</li> <li>• Requiring support with return to activities</li> </ul>
<b>Orthopaedic Surgeon</b>	<ul style="list-style-type: none"> <li>• Co-occurring orthopaedic injuries</li> <li>• Structural spine injury</li> </ul>
<b>Physiatrist</b> (Physician specializing in Rehabilitation Medicine)	<ul style="list-style-type: none"> <li>• Requiring decisions about return to learn, school, work, and play</li> <li>• Persisting post-traumatic headaches</li> <li>• Physical, cognitive and emotional symptoms impacting a patient's function, that are not already being addressed by another specialist</li> </ul>
<b>Physician/Sports Medicine Physician</b>	<ul style="list-style-type: none"> <li>• Requiring decisions about return to learn, school, work, and play</li> <li>• Sleep difficulties, physical fatigue</li> <li>• Headache</li> <li>• Seizures</li> </ul>

Specialist / Professional Expert	For the following Persistent Symptoms:
	<ul style="list-style-type: none"> <li>• Sensitivities to light and/or sound, vestibular abnormalities, dizziness, nausea and/or vomiting, tinnitus</li> <li>• Disorders of taste and smell, disorders of motor speech and swallowing</li> <li>• Co-occurring orthopaedic injury</li> <li>• Structural brain or spine injury</li> </ul>
<b>Physiotherapist/Vestibular Therapist</b>	<ul style="list-style-type: none"> <li>• Decreased balance, persisting dizziness, benign paroxysmal positional vertigo (BPPV), tinnitus</li> <li>• Oculomotor dysfunction</li> <li>• Headache</li> <li>• C-spine dysfunction, neck pain, postural issues</li> <li>• Physical fatigue</li> <li>• Co-occurring orthopaedic injury</li> <li>• Requiring support returning to activities</li> </ul>
<b>Psychiatrist</b>	<ul style="list-style-type: none"> <li>• Persisting symptoms of depression/anxiety including Post traumatic stress disorder (PTSD)</li> <li>• Suicidal ideation</li> <li>• Requiring support returning to learn, work, and play</li> </ul>



<b>Specialist / Professional Expert</b>	<b>For the following Persistent Symptoms:</b>
<b>Social Worker</b>	<ul style="list-style-type: none"> <li>• Need for education/support of family members</li> <li>• Depression/anxiety</li> <li>• Sleep difficulties</li> <li>• Financial difficulties</li> <li>• Difficulty with return to regular activity (fatigue, sleep, performance issues) and community integration</li> </ul>
<b>Speech Language Pathologist</b>	<ul style="list-style-type: none"> <li>• Cognitive communication deficits (word finding, word formulation, reading comprehension, processing)</li> <li>• Requiring support for return to activity (social communication , school)</li> <li>• Disorders of motor speech and swallowing</li> </ul>