

Vision Therapy (Oculomotor Training)



What it is

Vision therapy includes a large range of exercises and techniques designed to help train specific aspects of the visual system, helping it return to normal after a concussion. A variety of different tools and exercises are utilized in vision therapy to improve the accuracy of our eyes.

Why it may work for you

The visual system is the largest in the brain – more brain areas are involved in processing visual information than any other system in the brain. This makes it particularly vulnerable to concussion.

Vision therapies can help in two ways:

- In some cases, the exercises may help repair damaged connections, returning them to normal.
- In cases of more severe damage, the exercises can help the brain develop techniques to compensate for longer-lasting deficits.

Who it may be appropriate for:

Vision therapy may benefit people experiencing common vision-related symptoms after concussion, including:

- Blurry vision
- Double vision
- Eye pain
- Headaches
- Sensitivity to motion
- Sensitivity to light
- Difficulty with eye movements
- Difficulty tracking moving objects
- Peripheral vision problems

Who to see

A comprehensive eye examination is the first step in determining whether vision therapy is recommended.

- **Optometrist**
- **Ophthalmologist**
- **Neuro-optometrist**
- **Neuro-ophthalmologist**

You'll then want to see a **Certified Optometric Vision Therapist** for your sessions.

Note: Vision therapy is evidence-based but may not always be covered by insurance.

Learn from an Expert

[Learn about the Visual Symptoms of Brain Injury with Optometrist Dr. Stephanie McLellan.](#)

Learn More

Go to ConcussionFoundation.ca/resource-centre/pcs-resources or scan the QR code



Neuro-Optometric Rehabilitation (Oculomotor Training)

What it is

Neuro-Optometric Rehabilitation therapy utilizes therapeutic prisms, lenses, filters, and occlusion to help stimulate parts of the brain that are not functioning to their highest potential due to interruptions caused by brain injury.

Neuro-Optometric Rehabilitation is not to be confused with vision therapy, which is a separate therapy ([see vision therapy 1-pager](#)) needed by some brain injury survivors.

Who it may be appropriate for

This is a **specialized, individualized treatment** regimen used in the management of Post-Concussion Syndrome. It is especially beneficial for those who have visual deficits as a direct result of traumatic brain injuries.

Why it may work for you

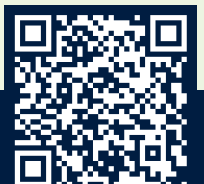
A Neuro-Optometric Rehabilitation treatment plan is designed on an individualized basis to improve specific acquired vision symptoms based on standardized diagnostic criteria.

Who to see

An **optometrist** who offers or specializes in **Neuro-Optometric Rehabilitation**.

Learn More

Go to ConcussionFoundation.ca/resource-centre/pcs-resources or scan the QR code



Vestibular Therapy (Balance Therapy)

What it is

Vestibular therapies encompass a wide range of techniques, including habituation exercises, gaze stability training, and balance training.

Depending on which activities tend to make balance symptoms worse, doctors can develop training plans to alleviate symptoms.

Who it may be appropriate for

Vestibular therapy can be particularly helpful for patients who are suffering from the following after a concussion:

- Persistent dizziness
- Vertigo
- Balance problems

Why it may work for you

Our sense of balance relies on input from many different systems in our brain, including the visual system, our sense of proprioception (which tells us where our body parts are in space, and our vestibular system (which tells us how our body is oriented and moving in space).

In some cases, doctors can isolate which systems are causing problems.

Opening the door for targeted treatments that can improve overall outcomes.

Who to see

- **Audiologist**
- **ENT**
- **Neurologist**
- **Physiatrist with specialized training**
- **Physiotherapist with specialized training**



Physiotherapy

What it is

Physiotherapy (PT) is a broad medical discipline that treats ailments through physical means rather than surgical or pharmacological treatments.

This includes techniques such as massage, exercise therapy, and heat treatments.

Why it may work for you

Physiotherapy can be helpful for patients with certain types of headaches or neck pain (especially cervicogenic PT) and for patients who may have suffered orthopaedic injuries or whiplash at the same time as their concussion.

Who it may be appropriate for

Often, the violent collisions that cause concussions also cause other injuries, especially when whiplash is involved.

Sometimes, those other injuries can interact with the concussion, making the symptoms worse.

Physiotherapy can help injuries that may be making concussion symptoms worse.

Who to see

A **physiotherapist** with training or specialty in concussion or brain injury rehabilitation.

Learn from an Expert

[Check out our webinar featuring:](#)

Dr. Lindsay Walston, Neurologic Residency Director and National Education Coordinator at PT Solutions Physical Therapy, **to learn how physiotherapy can help treat long-term concussion symptoms.**



Exertional Therapy

What it is

Exertional therapy involves a concussion patient performing light aerobic activity in a controlled and monitored environment. This could be on a treadmill, in a pool, or in another setting with no risk of inadvertent head impact.

Doctors will design a custom plan for each patient that helps them raise their heart rate to a specified level.

It is extremely important that this be done under the close supervision of a medical professional, as overexertion can hamper recovery.

Who it may be appropriate for

Under the direction of your doctor, exertional therapy can be helpful at any stage of concussion recovery.

Why it may work for you

Exercise has a very well-documented effect on health – simply put, it is good for our bodies. By having patients lightly exert themselves in a controlled environment.

At an intensity that does not worsen symptoms, doctors seek to take advantage of these benefits.

Who to see

- **Athletic Therapist**
- **Physiatrist**
- **Physiotherapist**



Cognitive Rehabilitation Therapy



What it is

Cognitive Rehabilitation Therapy (CRT) is a goal-oriented approach to restoring and improving functional cognitive skills. A referral for CRT typically includes a comprehensive cognitive-linguistic evaluation assessing attention, memory, executive functioning, and expressive and receptive language skills.

Treatment includes a functional approach that is both restorative and compensatory in nature to help support any areas of observed cognitive weaknesses. Patients are typically actively involved in developing goals to improve their overall functioning.

Who to See

- **Neuropsychologist**
- **Occupational Therapist (trained in CRT for head trauma)**
- **Speech-Language Pathologist (trained in CRT for head trauma)**

Who it may be appropriate for

CRT is a service provided by speech-language pathologists to help individuals experiencing cognitive difficulties that impact daily functioning.

CRT can be helpful for patients experiencing changes or deficits in attention, memory, executive functioning (e.g., planning, organizing, time management), and word-finding skills.

Why it may work for you

CRT is an effective treatment for individuals who are struggling to manage daily tasks in home, work, and community settings due to cognitive changes.

This may include difficulty managing bills, medication, time, and emotions; difficulty sustaining attention in conversation with loved ones or at work; and difficulty studying or keeping up with job responsibilities.

CRT can help patients return to an academic or workplace environment with appropriate strategies and support. CRT is evidence-based and able to address the functional needs of the concussion population.

Learn More

Go to [ConcussionFoundation.ca/resource-centre/pcs-resources](https://www.concussionfoundation.ca/resource-centre/pcs-resources) or scan the QR code



Cognitive Behavioural Therapy (CBT)

What it is

Cognitive Behavioural Therapy (CBT) is a psychological therapy frequently used to treat problems with mood, including depression and anxiety.

CBT helps patients develop the ability to identify negative thought patterns that contribute to a patient's individual difficulties and teaches concrete skills that patients can use to help manage them.

Who to see

Any **psychologist** or **licensed mental health professional** trained in CBT.

Who it may be appropriate for

CBT can be very effective for patients who are suffering from mood changes after a concussion, most commonly depression or anxiety.

Why it may work for you

CBT is a highly effective treatment for many mood and anxiety disorders, often providing clinically meaningful relief within weeks or months.

In the setting of concussion, preliminary evidence suggests that CBT may be able to similarly help patients develop coping strategies to help manage their symptoms.



ENT (Ear, Nose, Throat)

What it is

ENT specialists, or otolaryngologists, are physicians trained in the medical treatment of patients with diseases and disorders of the ear, nose, throat, and related structures of the head and neck.

ENTs are also trained to treat balance disorders, tinnitus, nerve pain, and disorders of the facial and cranial nerves.

Who it may be appropriate for

PCS patients struggling with the following may be referred to an ENT for an evaluation:

- Dizziness
- Tinnitus (ringing in the ears)
- Extreme noise sensitivity
- Vertigo
- Balance issues.

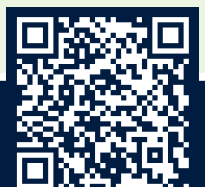
Why it may work for you

A careful examination of the ears, along with a hearing test, may help identify disorders associated with PCS.

Many of these ear-related symptoms and disorders are treatable with surgical repair or with a specialized type of vestibular therapy.

Who to See

- An **ENT specialist.**



Neuropsychology

What it is

Neuropsychology is a branch of psychology that focuses on how the brain and the rest of the nervous system influence a person's cognition and behaviours.

Neuropsychologists will focus on how your brain injury affects your cognitive functions and behaviours.

In contrast, clinical psychologists will focus more on the impact the injury has on your cognitive function, mood, emotions, and behaviours.

Who it may be appropriate for

Individuals who are experiencing symptoms such as:

- Anxiety
- Depression
- Concentration
- Difficulties with memory
- Impulsivity
- Memory
- Motor Function
- Multitasking
- Word finding

Why it may work for you

Neuropsychologists can administer a detailed test of a patient's cognition and emotional state. They may also help patients design an action plan and equip them with strategies to manage cognitive and emotional stress and slowly retrain their brains to perform cognitive tasks

Who to see

A **licensed neuropsychologist**.



Psychiatry

What it is

Psychiatry is the medical specialty devoted to the diagnosis, prevention, and treatment of mental health disorders, including substance use disorders.

Psychiatrists are qualified to assess both the mental and physical aspects of psychological problems.

Psychiatrists can prescribe medication, whereas psychologists cannot.

Who to see

A licensed **psychiatrist**.

Who it may be appropriate for

Individuals experiencing personality change and mood swings, including

- Anger
- Aggression
- Impulsivity
- Increased emotionality or anxiety and depression.

Why it may work for you

Pharmacological treatments psychiatrists may recommend are typically a last resort for PCS patients

However, when used in combination with other treatments, can be successful at treating emotional and behavioural symptoms.



Occupational Therapy (OT)

What it is

Occupational therapy (OT) is an evidence-based practice that treats patients through the therapeutic use of everyday activities.

They help patients develop, recover, improve, and maintain the skills needed for daily living and working.

OT practitioners focus on adapting the environment and/or task to fit the patient, and the patient then becomes an integral part of the therapy team.

Who to See

An **occupational therapist** or **occupational therapy assistant** trained in brain injury or concussion rehabilitation.

Who it may be appropriate for

Those who are struggling with symptoms that impact their daily functioning. Those could include but are not limited to:

- Fatigue
- Headache
- Sensory sensitivities,
- Dizziness
- Sleep
- Memory loss
- Concentration difficulties
- Processing speed, language and communication
- Executive function
- Functional vision impairments

Why it may work for you

OTs help patients develop strategies to manage symptoms, improve function at work or school, and help patients increase cognitive skills and performance in daily life.

OTs can communicate with teachers and employers to help them understand what patients can and can't do, as well as make suggestions for accommodations to make the transition back to post-injury life easier.



Neuroendocrine Assessment of Pituitary Function

Brain injuries can be complex and create complications in locating the source of your symptoms. **Unlike the active treatments listed above, this therapy is investigational.**

Prior to honing in on active treatments, or if active treatments are not proving effective, it may be worth attempting to rule out certain underlying causes by undergoing investigational therapies like this one.

What it is

The specific tests may vary from clinic to clinic.

One comprehensive concussion clinic recommends a fasting blood test for prolactin, T-4, TSH, ACTH, cortisone, growth hormone, testosterone, and vitamins B-12 and D.

If abnormal levels are found, **a referral to an endocrinologist** is recommended.

Who it may be appropriate for

Neuroendocrine assessment of pituitary function may be helpful for those experiencing PCS symptoms, especially: brain fog, fatigue, listlessness, and depression who are not responding to active therapies.

Why it may work for you

The **pituitary gland** can be injured with traumatic brain injury, including concussion. Pituitary gland injury can negatively affect thyroid and adrenal gland activity or testosterone and growth hormone levels and can result in symptoms that mimic PCS symptoms. Adjusting your levels may provide significant relief of symptoms.

Learn from an Expert

Watch this [webinar](#) with

Dr. Tamara Wexler, Clinical Associate Professor in the Department of Rehabilitation Medicine at NYU Langone Health,

On the benefits of Neuroendocrine Assessment.

Learn More

Go to ConcussionFoundation.ca/resource-centre/pcs-resources or scan the QR code



Meditation

What it is

Meditation is a practice where an individual uses a technique such as mindfulness to train attention and awareness to achieve a mentally clear, emotionally calm, and stable state.

Who it may be appropriate for

There is new and emerging science pointing specifically to the benefits of meditation for brain injury patients. Anyone suffering from PCS symptoms, especially those experiencing issues with sleep or anxiety, may benefit from practicing meditation.

Why it may work for you

Studies show meditation can help reduce stress, improve attention, improve sleep, and enhance positive emotions

Who to See

Look for a meditation studio in your area, or try apps like

- Calm
- Headspace
- Insight Timer

to find a guided meditation practice that you like.

Learn from an Expert

Try meditation today by

- **[Watch this guided practice for brain injury](#)** - Led by meditation teacher and CLFC Board Member, Caroline Desmarais
- **[Watching this webinar, explores practical strategies to manage stress and build resilience after a concussion.](#)** - Led by concussion survivor and meditation practitioner Jessie Smith.

