

Post-concussion Guidelines: Return to School Considerations for Students who are Blind or Visually Impaired

Reduced visual functioning is a common characteristic of concussion. The related symptoms such as blurred vision, sensitivity to light, and visual fatigue can be induced by typical school activities, such as reading, playing sports, using a computer, or working under overhead lighting. As such, changes to school performance due to reduced visual functioning may be first evident to a student's general education classroom teacher.

Concussion symptoms can be more challenging to recognize in students with visual impairments. In the case of a student with low vision, a small to moderate fluctuation in visual functioning may easily go unnoticed. For a student who is blind, changes in visual functioning do not apply, potentially making concussion symptoms challenging to identify.

A qualified teacher of students with visual impairments (TSVI) and Orientation and Mobility Specialist (O&M) can help identify any post-concussion changes in functioning. In the case of students with low vision, a functional vision assessment (FVA) completed by the TSVI can identify the degree of changes to a student's functional vision, particularly if a previous assessment could be used for baseline comparison. An updated ophthalmology report would also be helpful. If the student works with an O&M Specialist, an updated O&M assessment can provide evidence of changes to the student's gait, balance, route memory and general travel confidence. Importantly, this evaluation can inform the team about changes in the student's proficiency for independent travel as compared to pre-concussion assessments.

Students who are blind may display symptoms including emotional and behavioural changes, a decline in mental health, and irregular sleep patterns. They may also experience physical symptoms such as dizziness, disorientation, nausea, and headache. In some cases, it may be difficult to discriminate between the student's concussion symptoms and some features of their individual sensory profile. The TSVI and O&M Specialist can help clarify such differences.

If you work with a student who is visually impaired and who has sustained a concussion, it is important to remember that their symptoms might not be entirely obvious or visible to others. The student's TSVI and O&M specialist are trained to assess functional vision, spatial awareness, and mobility. Data from their assessments will help to inform the process of safely returning to full activities.

The Expanded Core Curriculum

The [Expanded Core Curriculum \(ECC\)](#) is a set of specialized concepts and skills taught to children and youth with vision impairment by a teacher of students with visual impairments (TSVI) and Orientation and Mobility Specialist (O&M). Direct, systematic instruction in the areas of the ECC works to compensate for the reduced opportunity for incidental learning resulting from full or partial visual impairment.

There are nine areas of the ECC and concussion symptoms can impact each of these areas. The following guide outlines the nine areas of the ECC and provides examples of concussion characteristics that may be noticed in each area. The guide can be used to check symptoms and to further help determine possible learning supports. Additionally, the ECC Concussion Symptom Guide should be considered when making even temporary changes to the student's Individual Educational Plan (IEP).

ECC (Expanded Core Curriculum) Concussion Symptom Guide

Area of ECC	ECC Skills	Possible concussion Symptoms that may Impact Learning	Possible Classroom Supports
Social Interaction Skills	Knowledge and skills for effective social interaction across home, school, and community. Related Skills Include: Listening Conversation skills Problem solving	Difficulty concentrating on social task or conversation Difficulty remembering and reduced working memory (multitasking) Difficulty speaking (forgetting words)	Routine check-in Classroom Considerations: Include the student in a smaller working group with more controlled interactions Consider peer support for maintaining a

	<p>Understanding social cues</p> <p>Relationship building</p>	<p>Feeling emotional or irritable</p> <p>Nervousness, frustration, or anxiety</p> <p>Feeling easily overwhelmed or becoming increasingly withdrawn in a social situation</p> <p>Difficulty engaging in social tasks (making eye contact, working in a busy environment)</p> <p>Responding inappropriately (missing information during conversation, difficulty with self-regulation, increased outbursts and interrupting)</p> <p>Sensitivity to light and noise</p> <p>Sensory overload</p> <p>Change in personality (becoming unusually quiet and anxious, acting out of character)</p>	<p>connection to the classroom community.</p> <p>Provide an alternative quiet individual or collaborative work space</p> <p>Lighting and glare considerations: Wearing a hat, placement away from bright light or window, options to move around indoor and outdoor spaces to access materials</p> <p>Task focus considerations: Reduced intensity and duration of task, breaking down task into smaller chunks</p> <p>Acoustic considerations: Noise cancelling headphones, breaks, calm space option</p>
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Recreation and Leisure Skills

Knowledge and skills for Learning motor skills.

Related skills include:

Use of equipment

Physical education class
Individual and team sports

Development of physical literacy skills

Games (board games, card games, video games)

Media (videos, music, reading and writing)

Arts and crafts

Following rules and turn taking

Awareness of personal safety

Feeling fatigue and low energy after short bouts of activity

Nervousness, frustration, and anxiety

Feeling easily overwhelmed or becoming increasingly withdrawn

Balance problems and disorientation

Increased clumsiness or difficulty with spatial orientation

Reduced reaction speed and/or decrease in acquisition of physical literacy and body movement skills

Experiencing reduced functional vision (tracking, scanning, hand-eye coordination, depth-perception, difficulties with near/distance vision, increased nystagmus)

Increased light sensitivity and/or reduced contrast sensitivity

Routine check-in

Activity

Considerations: Allow for alternative activity (work on individual or small group activities, reduced complexity, or allow for self-selected activity)

Lighting and glare considerations:

Wearing a hat and/or sunglasses, seating away from bright light or window, options to move around indoor and outdoor spaces to for best visual/auditory access

Acoustic

considerations: Noise cancelling headphones, breaks, calm space option

Activity focus

considerations: Reduced intensity and duration of activity

		<p>Feelings of grief (loss of ability, feeling unable to participate)</p> <p>Experiencing a decrease in body awareness (proprioception)</p>	
<p><u>Sensory Efficiency Skills</u></p>	<p>Use of all sensory systems to receive, transmit, and interpret information about people, objects, and events in any given environment.</p> <p>External Senses:</p> <ul style="list-style-type: none"> - Distance (vision, hearing, smell) - Contact (taste, touch) <p>Internal Senses:</p> <ul style="list-style-type: none"> - Proprioception (body position) - Vestibular (balance, movement) - Interoception (internal body sensations) 	<p>Aversion to sounds or smells</p> <p>Sensitivity to light</p> <p>Headache, nausea, dizziness</p> <p>Experiencing reduced functional vision (tracking, scanning, hand-eye coordination, depth-perception, difficulties with near/distance vision, increased nystagmus)</p> <p>Confusion</p> <p>Sensory overload</p> <p>Nervousness, frustration, and anxiety</p>	<p>Routine Check-in</p> <p>Print Considerations: Adaptations to print (increased print-size, increased contrast, increased magnification)</p> <p>Technology considerations: Screen brightness, screen reader, reducing blue light on computer, text-to-speech, volume, speed, verbosity, increase contrast (reverse polarity), accessibility settings on devices</p> <p>Task focus considerations:</p>

	<p>Related skills include:</p> <p>Effective use of low vision devices</p> <p>Auditory recognition skills</p> <p>Sensory efficiency in a complex environment</p> <p>Understanding the tools needed for a given situation</p> <p>Communicating with teachers and peers</p>	<p>Balance problems and disorientation</p> <p>Feeling easily overwhelmed or becoming increasingly withdrawn</p> <p>Difficulty remembering and reduced working memory (multitasking)</p>	<p>Reduced intensity and duration of task, breaking down task into smaller chunks</p> <p>Alternative work space (quiet and collaborative spaces)</p> <p>Environmental considerations: May need to temporarily avoid class/classrooms that trigger sensory overload (i.e. cooking class, music class, computer class).</p> <p>Acoustic considerations: Noise cancelling headphones, breaks, calm space option</p>
<p><u>Compensatory Skills</u></p>	<p>Knowledge and adaptive skills needed to effectively access the core curriculum.</p> <p>Related skills include:</p> <p>Concept development</p> <p>Spatial awareness</p> <p>Listening skills</p> <p>Use of specialized materials</p>	<p>Difficulty concentrating (generating and developing ideas)</p> <p>Difficulty remembering and reduced working memory (multitasking)</p> <p>Difficulty with prolonged reading activities and reduced reading comprehension</p>	<p>Routine Check-in</p> <p>Lighting and glare considerations: Wearing a hat, seating away from bright light or window, options to move around indoor and outdoor spaces to access materials</p> <p>Learning Considerations: Supports for activating short-term and long-</p>

(Guerette, 2017).

Sensitivity to light and noise

Difficulty with organization and executive functioning (planning, mental flexibility and critical thinking, decision making, shifting focus)

Falling behind on school work

Feeling easily overwhelmed or becoming increasingly withdrawn

Lack of motivation or feeling isolated

Nervousness, frustration, and anxiety

Feeling increased visual or body fatigue and low energy

term memory (use of graphs and charts, organize info into clusters or groups), provide alternative ways to show learning (art, recordings, listening to books)

Executive Functioning Considerations:

Support with activities that require planning, time management and organization (use of planner for scheduling), use of executive functioning adaptations ([Ready-Do-Done](#))

Acoustic considerations: Noise cancelling headphones, breaks, calm space option

Task focus considerations: Reduced intensity and duration of task, breaking down task into smaller chunks

[Access Technology Skills](#)

Using a toolkit of low and high tech solutions for effective access to information, including digital content and print materials.

Related skills include:

Keyboarding

Using computers with low vision or screen reading software

Using technology to organize workflow, email and web access.

Ability to decide which device to use for different tasks.

Symptoms return with increased screen time

Headache, dizziness, and fatigue

Difficulty remembering and reduced working memory (multitasking)

Difficulty with organization and executive functioning (planning, mental flexibility and critical thinking, decision making, shifting focus)

Sensory overload to screen and/or screen reader

Technology

considerations: Screen brightness, screen reader, reducing blue light on computer, text-to-speech, volume, speed, verbosity, increase contrast (reverse polarity), accessibility settings on devices

Environmental

considerations: May need to temporarily avoid class/classrooms that trigger sensory overload (i.e. classes that require extended technology use)

Task focus

considerations: Reduced intensity and duration of task, breaking down task into smaller chunks

Acoustic considerations: When using screen reader, audio books (noise cancelling headphones, breaks, calm space option)

<p><u>Orientation and Mobility Skills</u></p>	<p>Knowledge, skills, and tools supporting safer and more effective travel for learners with visual impairments.</p> <p>Related skills include:</p> <p>Spatial and body awareness</p> <p>Reading maps</p> <p>Learning traffic patterns</p> <p>Accessing transit information</p> <p>Remembering routes and landmarks</p> <p>Using public transportation</p> <p>Intersection analysis</p>	<p>Nervousness, frustration, anxiety, and fear</p> <p>Balance problems: Feeling dizziness, increased clumsiness, or difficulty with spatial orientation</p> <p>Changes in gait and stability</p> <p>Experiencing reduced functional vision (tracking, scanning, hand-eye coordination, depth-perception, difficulties with near/distance vision, increased nystagmus)</p> <p>Difficulty remembering (route planning, following multi-step directions, remembering</p>	<p>Spatial Body Awareness: Use of mindfulness techniques to reduce anxiety and increase self-awareness (deep breathing, 54321 grounding)</p> <p>O&M Instruction to review routes, street crossings, intersections, use of transit systems and safety considerations.</p> <p>Use of sighted guide and travel with a peer</p> <p>Lighting and glare considerations: Wearing a hat and/or sunglasses, seating away from bright light or window, ability to move around indoor and outdoor spaces to</p>

	<p>Being able to ask for assistance.</p>	<p>landmarks, and reduced working memory (multitasking).</p> <p>Feeling easily overwhelmed or becoming increasingly withdrawn</p> <p>Reduced reaction speed and/or decrease in acquisition of physical literacy and body movement skills</p> <p>Neck and head pain after physical activity</p> <p>Impaired focus while traveling in busy indoor and outdoor environments, making unsafe judgements</p> <p>Difficulty in noise discrimination in acoustically complex environments (street crossing, traffic, malls, large complex stores, transit stations)</p>	<p>for best visual/auditory access</p> <p>Create a backup plan for when a student is experiencing anxiety and/or difficulty during independent travel.</p> <p>Map considerations: Use tactile maps in place of technology</p> <p>Decrease length of lesson time and increase frequency of lesson</p>
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<p><u>Self Determination Skills</u></p>	<p>Knowledge and beliefs of skills promoting learners' independence and capacity for self-determined expression.</p> <p>Related skills include:</p> <p>Self-advocacy</p> <p>Decision making</p> <p>Self-knowledge</p> <p>Problem solving</p> <p>Understanding accessibility rights</p> <p>Making meaningful choices</p> <p>Articulating details about one's visual impairment</p>	<p>Nervousness, frustration, anxiety</p> <p>Difficulty concentrating or remembering</p> <p>Feeling emotional or irritable</p> <p>Sadness or anger</p> <p>Lack of motivation or feeling isolated</p> <p>Feelings of grief and self-consciousness (loss of ability, feeling unable to participate, invisible injury not being recognized by others)</p>	<p>Routine check-in</p> <p>Self-Advocacy considerations: Have the student be able to explain the residual effects of concussion and what may help.</p> <p>Health considerations: Having a support system in place to help with emotional health and wellness. (counsellor, specific therapy, concussion management team)</p> <p>Consider expectations and create healthy, realistic expectations with student</p> <p>Consider appropriate pacing for participation in school activities</p>
<p><u>Independent Living Skills</u></p>	<p>Knowledge, skills, and tools promoting independence in tasks associated with daily living.</p> <p>Related skills include:</p> <p>Personal management skills</p>	<p>Difficulty with organization and executive functioning (planning, mental flexibility and critical thinking, decision making, shifting focus)</p> <p>Nervousness, frustration, and anxiety</p>	<p>Consider appropriate pacing for daily activities</p> <p>Routine considerations: Create lists or reminders of daily habits (making bed, brushing teeth, eating)</p>

	<p>Home management skills.</p>	<p>Feeling emotional or irritable</p> <p>Feeling like in a fog</p> <p>Lack of motivation (ignoring personal hygiene and other healthy habits) or feeling isolated</p> <p>Feelings of grief and self-consciousness (loss of ability, feeling unable to participate, invisible injury not being recognized by others)</p> <p>Reduced concerns for safety</p> <p>Feeling easily overwhelmed or becoming increasingly withdrawn</p> <p>Difficulty sleeping</p> <p>Mental and physical exhaustion</p> <p>Difficulty with task complexity</p> <p>Change in personality</p>	<p>Health</p> <p>Considerations:</p> <p>Having a support system in place to help with emotional health and wellness. (counsellor, specific therapy, concussion management team)</p> <p>Consider gentle outdoor activities such as walks in nature</p> <p>Spatial Body Awareness</p> <p>Considerations:</p> <p>Use of mindfulness techniques to reduce anxiety and increase self-awareness (deep breathing, 54321 grounding)</p>
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Career and Vocational Skills

Knowledge and skills for realizing sustainable and fulfilling employment.

Related skills include time management skills, positive work habits, following instructions, communicating effectively with others, and post- graduation planning.

Difficulties concentrating or remembering

Feeling emotional or irritable

Nervousness, frustration, and anxiety

Feeling easily overwhelmed or becoming increasingly withdrawn

Fatigue or low energy

Difficulty with organization and executive functioning (planning, mental flexibility and critical thinking, decision making, shifting focus)

Lighting and glare considerations:

Wearing a hat, placement away from bright light or window, options to move around indoor and outdoor spaces to access materials

Task focus considerations:

Reduced intensity and duration of task, breaking down task into smaller chunks

Consider expectations and create healthy, realistic expectations with student

Consider appropriate pacing for participation in school activities

If possible, provide alternative work space (quiet and collaborative spaces)

Acoustic considerations: When using screen reader, audio books (noise cancelling headphones, breaks, calm space option)

For more information, see these resources from Parachute

- [Concussion guide for teachers](#)
- [Return to school strategy](#)
- [Know your role - Athletic directors, coaches, teachers, and other supervisors](#)
- [More information on concussion protocol resources for schools](#)

References:

BC Injury Research and Prevention Unit. (2020). Concussion Awareness Training Tool. <https://cattonline.com/>

Parachute. (2017). Canadian Guideline on Concussion in Sport. www.parachute.ca

Provincial Resource Centre for the Visually Impaired. (2021). Expanded Core Curriculum. <https://prcvi.org/resources/the-expanded-core-curriculum/>