



What is Cortical Visual Impairment?

Cortical Visual Impairment (CVI) is a congenital or acquired brain-based visual impairment which is unexplained by an ocular disorder, and associated with unique visual and behavioral characteristics.

A child has CVI when:

- The visual loss cannot be fully explained by an eye exam.
- There is a history of a neurological condition that affects the brain - even if brain imaging studies appear normal.
- The child demonstrates a set of unique visual and behavioral characteristics identified in medical and educational research.^{1,2}

What are the most common causes of CVI?

Medical conditions that disrupted a portion of the visual pathways can cause CVI. These can include perinatal hypoxia, hydrocephalus, traumatic brain injury, congenital infections such as cytomegalovirus, intraventricular hemorrhage, periventricular leukomalacia, genetic disorders and stroke.

“Some of these characteristics can be confused with signs of other prevalent diagnoses such as autism.

Similarities include watching objects that move, trouble making eye contact with others, a preoccupation with light... These are things I keep in mind, especially when a child has a history of a neurological condition.”

Stephanie N. Hall, M.S., OTR L, ITFS

Behaviors commonly associated with CVI:

- Lack of visual curiosity
- Hesitancy interacting in new environments or with new items
- Difficulty looking at and reaching for objects at the same time
- Increased visual attraction to lights, windows or ceiling fans
- Over reliance on auditory compared to visual cues
- Difficulty finding objects in a busy environment, such as the grocery store or playground
- Difficulty navigating through a building or community environment
- Tilts head to regard object in a specific visual field
- May have difficulty with lower field visual regard that can affect navigation of stairs, curbs and terrain changes, playground slides and noticing objects on the ground
- Difficulty making eye contact or recognizing familiar faces
- Difficulty visually attending in a busy environment
- May take longer to look at or visually process information

1 Roman-Lantzy, C. (2018). *Cortical Visual Impairment: An Approach to Assessment and Intervention*. 2nd ed., New York, NY: AFB Press.

2 Roman-Lantzy, C. (2019). *Cortical Visual Impairment: Advanced Principles*. Louisville, KY: APH Press.

For more information, visit **PCVIS** at www.pcvision.com.

The Pediatric Cortical Visual Impairment Society, a multi-disciplinary group of doctors, medical professionals, researchers, educators and parents, was created to further advocacy for children with CVI, heighten public awareness, and promote research and other activities that lead to improvement in vision care for children with CVI. **PCVIS** is a 501(c)(3) nonprofit organization.

What is the therapist's role?

- Evaluate the child's functional skills to determine the cause of the underlying impairment(s) such as functional vision vs sensory vs coordination (usually OT)
- Develop a treatment service plan addressing functional performance that incorporates functional vision and visually guided movement
- Facilitate social interactions and participation
- Recommend assistive technologies that support use of vision:
 - Mobility aids: walker, gait trainer, wheelchair
 - Seating: adaptive seating or positioning device
 - Communication: Augmentative and Alternative Communication Devices (AAC)
- Collaborate with caregivers regarding:
 - Environmental adaptations (home and community)
 - Adaptations to daily activities and routines
 - Observing a child's visual responses before and after adaptations
 - Provide ongoing education and resources
- Collaborate with other professionals regarding:
 - Effective visual adaptations
 - Child's functional performance in other environments and conditions

Things to consider:

- Visual accommodations should be considered for all aspects of a child's day.
- Apparent fluctuations in vision manifest from changes in environments and internal states.
- Consider how vision is used in a variety of situations and environments.
- Consider the impact of vision on the identification of any motor delay.
- Incorporate vision strategies from professionals who understand the child's vision.
- The level of visual support needed may change. When the child is completing a familiar task, they may not need as many adaptations. When the child is learning a new task, make it easier to use vision by providing additional visual adaptations.
- Look for opportunities to challenge vision when the child is highly motivated (i.e. during feeding or during a highly preferred task) or familiar with the task.

What can you do if you suspect CVI?

- Refer the individual to an ophthalmologist or an optometrist
- Communicate with eye doctor and or give parents specific language to discuss with the eye doctor
- Contact school personnel to ensure child is assessed by all relevant disciplines (i.e., Teacher of the Visually Impaired and or Orientation and Mobility Specialist)
- Recommend a functional visual assessment specific to CVI (i.e., CVI Range ^{1,2})
- Trial environmental and task adaptations to improve visual response

Common task, material object and environmental adaptations

- Reduce the complexity of a visual target object
- Reduce or eliminate background information (i.e. put up black trifold, reduce clutter)
- Reduce the number of items offered at one time
- Allow extra time for a child to view an object before moving it to a new position
- Position materials or objects in child's best regarded visual field
- Change light as needed by either eliminating distracting light and or using light to spotlight a specific object to elicit visual attention
- Seating away from a busy part of the room and/or preferential seating
- Use one bright color to highlight specific parts of materials or environmental features
- Use language to point out the salient visual features of an object