



CORTICAL VISUAL IMPAIRMENT

Many of the clients who we work with have visual issues that may be related to their primary diagnosis. Vision not only impacts a person's ability to move throughout his/her environment, but it can also impact posture.

Vision is a complex process. The visual system is a part of the central nervous system. The lens of the eye focuses an image onto the retina, a light-sensitive membrane on the back of the eye. If the image is focused in front of the retina, a person is near-sighted (myopia); if the image is focused in back of the retina, a person is far-sighted (hyperopia). In astigmatism, images are not sharply focused on the retina due to the shape of the cornea. Visual acuity is primarily the focus of images and has to do with the eye itself. But there is much more to our vision. The focused image is then sent to the brain via the optic nerve. The brain interprets or processes the visual information along with other related information including hearing and proprioception. Visual perceptual skills include depth perception, tracking and the ability to pick out a specific object (i.e. a spoon) in a field (i.e. a silverware drawer).

Cortical or cerebral visual impairment (CVI) results from a neurological problem in the visual processing center and visual pathways of the brain, not from a physiological problem with the eye itself. CVI is caused by a lack of oxygen, injury or infection to the areas involved. As such, this is commonly seen in clients with cerebral palsy, hydrocephalus, brain injury or meningitis. This has been termed cortical blindness in the past, but this is an older term, as these clients usually have some vision and the condition tends to improve with time. In CVI, the eye sees an image and sends this to the brain, but the information is not properly processed or integrated because of abnormal brain function. Specifically, clients with CVI may have difficulty sustaining focus on an object and filtering out peripheral visual information.

Clients with CVI often:

- see certain colors or contrasts better
- have varying visual abilities throughout their day
- have delayed visual responses
- assume specific head positions to improve ability to see objects
- glance at objects repeatedly, rather than sustain visual contact

CVI is diagnosed and treated by someone termed a behavioral or developmental optometrist. Vision therapy may also be provided by specially trained clinicians.

How does CVI affect posture? Many clients will hold their head forward and look at objects out of the sides of their eyes. As a result, the client rarely is in contact with the head support. The client may need to assume these postures for optimal vision throughout their day. Some clients with CVI will have enough vision to use power mobility, particularly indoors where less depth perception is required (i.e. drop offs) or with supervision.

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RESOURCES:
AMERICAN ASSOCIATION OF PEDIATRIC
OPHTHALMOLOGY AND STRABISMUS, [HTTP://
WWW.AAPOS.ORG/TERMS/CONDITIONS/40](http://www.aapos.org/terms/conditions/40)

COLLEGE OF OPTOMETRISTS IN VISION DEVELOPMENT, [WWW.COVD.ORG](http://www.covd.org)

