

Cortical Blindness

BIRTH DEFECT RESEARCH FOR CHILDREN



What is Cortical Blindness?

Cortical Blindness is a visual impairment caused by damage to the visual systems in the brain (visual cortex) which deal with processing and integration of visual information. There is an impairment of visual functioning even though the eyes are anatomically and structurally intact. Because of the neurological basis for the condition, it is also called Neurological Vision Impairment and Cortical Vision Impairment. The condition affects vision in a variety of ways and causes vision loss that ranges from mild to severe. The vision impairment can be temporary or permanent. Fluctuating vision is common; a child with Cortical Blindness may see an object one day but not the next. Often peripheral vision may be better than central vision. The visual loss may not be symmetrical (one eye may be worse than the other).



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Children with Cortical Blindness experience problems with specific types of visual tasks such as depth perception, ability to see all objects in a cluttered scene, and visual attention span. Children with Cortical Blindness may have additional disabilities. Optic atrophy (defect of the optic nerve) and optic nerve hypoplasia (congenital defect of the optic disk) are more common for children with Cortical Blindness. Some children with Cortical Blindness have additional neurological deficits such as cerebral palsy, epilepsy, various spinal and cranial defects, and intellectual disability.

How many children have Cortical Blindness?

Of the children with vision impairment, 21% have Cortical Blindness.

How do you know if your child has Cortical Blindness?

Vision is the vital trigger that stimulates a child to raise his/her head. Generally, children with Cortical Blindness will show a developmental delay in head raising functions. Other activities driven by visual stimulation include rolling over, pushing backwards or forwards, raising up on upper limbs, and crawling. Delays in these areas also could be signs of a problem. Other warning signs include the ability to see at certain times and not at other times; noticing brightly colored objects but ignoring black and white objects; noticing a moving object but ignoring the same object when it is stationary; fixating on an object by looking to the right or left of the object; looking away when reaching for an object; and preferring the sense of touch or hearing over sight.

Cortical Blindness is usually diagnosed when a child has poor or no visual response yet has a normal eye examination and normal pupillary response. Because other ocular problems may co-exist, diagnosis is sometimes difficult. A number of tests can be used to diagnose Cortical Blindness including Electroretinogram (ERG), Visual Evoked Potential Mapping (VEPM), Magnetic Resonance Imaging (MRI),

and Computed Tomography (CT). Functional vision assessments of the child interacting within his/her environment are also used.

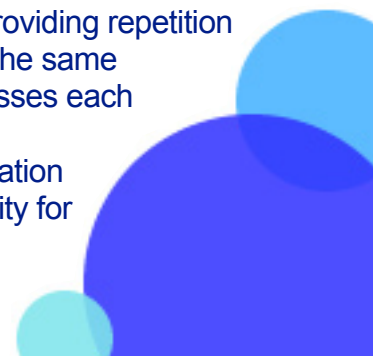
What causes Cortical Blindness?

The causes for the lack of cortical functioning include, but are not limited to, lack of oxygen, viral or bacterial illness such as meningitis and encephalitis, developmental brain defects, and traumatic brain injury.

How can you help a child with Cortical Blindness?

Direct intervention and visual stimulation at an early age are important for a child with Cortical Blindness since the potential for improved visual functioning is better in a young child than in an older child or an adult. Visual stimulation activities, over a long period of time, in both therapy sessions and everyday situations can improve a child's visual functioning. Current research suggests that there are many specialized cortical sites for vision. Approximately 30 sites have been identified. The visual problems that a child has may be dependent on the site(s) of damage, the degree of damage, and the time of onset. Consequently, no single rehabilitation technique or approach will work for all children.

Parents can make a list of what the child does and does not respond to and provide that information to the child's doctors and specialists. This will help them develop a rehabilitation program to meet the child's specific needs. In most cases a multi-disciplinary team is recommended to include a pediatric neurologist, pediatric ophthalmologist, physical therapist, occupational therapist, mobility specialist, and vision teacher. Parents can help a child understand his/her visual environment by providing repetition and routines such as using the same objects and the same processes each time. Visual clues that are consistent over time and location provide security and familiarity for your child.



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Since color vision is usually unaffected, colors can be used effectively to attract your child's attention and help him/her see. Usually bright colors such as yellow and red are easier to see. You can also experiment with lighting. Some children prefer dimly lit environments while others prefer bright lights. Incandescent lighting may be better than fluorescent lighting. Vision is best stimulated when paired with another sensory system such as touch or hearing. Children with Cortical Blindness usually function best in simple, uncluttered environments. Your child may tire easily when using his/her visual sense so it is important to allow for adequate "break" times.

What's In The Future For A Child With Cortical Blindness?

Children with Cortical Blindness are usually delayed to some degree in reaching developmental milestones and in sensory-motor activities and social development. There is no way to predict what your child's vision will be like as s/he matures. Vision impairment may be permanent or transient. If no other abnormalities are present, the prognosis is good for regaining some degree of visual functioning. The progress may take time, but significant and dramatic visual recovery can happen over the long term.

Fact Sheet by:

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