

Module: **Visual Conditions and Functional Vision:
Early Intervention Issues**

Session 3: Visual Conditions in Infants and Toddlers

HANDOUT K: Brief Overview of Childhood Visual Disorders

Hatton, D.D. (2003). *Brief overview of childhood visual disorders*. Chapel Hill, NC: Early Intervention Training Center for Infants and Toddlers With Visual Impairments, FPG Child Development Institute, UNC-CH.

Conditions/Diagnosis	Cause	Functional Implications	Prognosis	Treatment
Albinism Lack of pigment in eye, skin, or both	Hereditary	Macula is affected and decreased visual acuity results (usually 20/200 to 20/70). Nystagmus, photophobia, refractive error. Visual fields may be affected and color vision is normal.	Stable	Visors; tinted glasses for outside activities; dim illumination

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<p>Amblyopia Lazy eye or decreased vision due to insufficient visual input</p>	<p>Failure to use eye, often due to muscle imbalance or to one eye having much better vision</p>	<p>Lowered visual acuity with no apparent disease of the eye. If not treated, can result in functional blindness in the affected eye.</p>	<p>Varies; early treatment critical</p>	<p>Orthoptics, optical, surgical, occlusion, penalization</p>
<p>Aniridia Partial or complete absence of iris</p>	<p>Genetic</p>	<p>Reduced visual acuity, photophobia, possible nystagmus, cataracts, displaced lens, underdeveloped retina. Secondary complication may be glaucoma.</p>	<p>In mild cases, cataracts may develop slowly; glaucoma and corneal opacities may develop in severe cases.</p>	<p>Lenses, optical aids, lower illumination, sunglasses</p>
<p>Cataracts (congenital) Opacity of lens</p>	<p>Result of intrauterine infection, drug use during pregnancy, malnutrition; hereditary</p>	<p>Reduced visual acuity, nystagmus, squint, photophobia.</p>	<p>Usually stable and favorable unless complications from surgery arise.</p>	<p>Surgery (as early as possible for severe cases); MUST have refractive lenses in order to accommodate; genetic counseling</p>

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<p>Coloboma Failure of part(s) of the eye to form completely during fetal development</p>	<p>Hereditary Results from trauma during first trimester</p>	<p>Depends on part(s) of eye affected (usually iris, retina, lens, choroid). Reduced visual acuity, nystagmus, photophobia, field defects. Secondary complication: cataracts.</p>	<p>Fairly stable</p>	<p>Sunglasses, lenses, optical aids, genetic counseling</p>
<p>Cortical visual impairment Inability to see even though eye and optic nerve are intact</p>	<p>May result from brain damage, asphyxia, pre- and post-natal infections</p>	<p>Varies considerably and may improve over time.</p>	<p>Uncertain</p>	<p>Adaptive strategies such as avoiding over-stimulation, allowing response time, using colored objects, etc.</p>
<p>Glaucoma Congenital: increased intraocular pressure due to inadequate drainage</p>	<p>Hereditary damage to drainage structures; associated with ROP, cataracts, aniridia, etc.</p>	<p>Reduced visual acuity, field restrictions, photophobia, tearing, lens opacity, buphthalmos.</p>	<p>Uncertain; treatment is critical</p>	<p>Surgical or drug treatment to reduce intraocular pressure; close medical supervision critical; genetic counseling</p>

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Leber's congenital amaurosis Rod-cone dystrophy	Hereditary	Often accompanied by nystagmus, refractive error, reduction in visual acuity that varies from 20/80 to total blindness.	May be progressive	Lenses may be useful for some children; controlled illumination; genetic counseling
Nystagmus Rhythmic involuntary movement of one or both eyes	Loss of vision; uncertain	Reduced visual acuity, difficulty in maintaining fixation.	Usually stable	Lenses of various types, optical aids, prisms, surgery
Optic atrophy Degeneration of optic nerve	Head trauma, CNS disorders, shunt failure	Reduced visual acuity.	Stable, unless associated with persistent hydrocephalus	Optical aids may help
Optic nerve hypoplasia Atypical development of the optic nerve during fetal development	Suggested associated factors: maternal age, smoking, low birth weight	Varies but usually results in reduced visual acuity, visual field defects, associated with hypopituitarism	Stable	Medical work-up to rule out endocrine involvement is critical

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Retinitis pigmentosa Progressive rod-cone dystrophy	Hereditary	Progressive vision loss Night blindness Loss of peripheral visual field	Poor	Optical aids, prisms, genetic counseling
Retinopathy of prematurity Disease of retina found usually in infants weighing less than 1251 grams	Multifactorial; associated factors: amount and level of oxygen; gestational age; birth weight; complications relating to prematurity	Varies considerably depending on stage; Stage 4 or 5 usually signifies severe visual loss. Secondary complications may include glaucoma, uveitis	Varies; children are at risk for high myopia, retinal detachment	Surgery; lenses; optical aids may be useful for some
Retinoblastoma Malignant ocular tumor	Hereditary, nonhereditary	Varies depending on size of tumor, treatment. Cataracts may result from treatment of tumors.	Varies	Radiation, chemotherapy, enucleation, genetic counseling

Terminology and Definitions

VISUAL ACUITY	Ability to form a clear, detailed image; sharpness of vision, ability to distinguish detail. A visual acuity of 20/20 is considered normal.
LEGAL BLINDNESS	A visual acuity of 20/200 or less in better eye with correction or a field of vision no greater than 20 degrees at widest diameter. Used to determine eligibility for certain services. (20/200 means that the person sees at 20 feet what the normal eye sees at 200 feet)
VISUALLY IMPAIRED	Refers to those who need special educational services/provisions as a result of visual impairment.
BLIND	Educationally, refers to those who have no vision or only light perception. Unable to learn via vision.
LOW VISION	Refers to those with severe visual impairment whose function can be increased through use of optical aids and environmental modifications. These students learn through vision.