

A Few Examples of Eye Conditions (other than refractive errors)

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Refractive Errors

Astigmatism, Hyperopia, Myopia

- Children with refractive errors that can be corrected with lenses to 20/40 are not considered visually impaired.
- Refusal to wear glasses does not make children eligible for services (we have been asked).
- <https://www.chop.edu/conditions-diseases/refractive-errors-children>
- <https://www.healio.com/news/optometry/20120225/refractive-errors-in-children-to-correct-or-not-to-correct>
- <https://www.richmondeye.com/simulations-of-eye-disorders>

Retinopathy of Prematurity-ROP

- Retinal disease occurring in premature babies
- Formerly called Retrolental Fibroplasia (RLF)
- Role of supplemental oxygen as a cause
- Classified by the part of the retina affected (zone), the degree of involvement (stage), and the appearance of the blood vessels (presence or absence of “plus” disease ... severe vascular changes of dilation and tortuosity)
- Cryotherapy, laser, vitrectomy
- <https://visionaware.org/get-connected/about-visionaware/retinopathy-of-prematurity-rop-6197/>

Congenital Cataracts

- Opacity of crystalline lens observed soon after birth (cloudy lenses)
- Prenatal causes (intrauterine infections, radiation, drug exposure, metabolic disorders)
- Hereditary in isolation or as part of a number of syndromes
- Must be treated in early infancy for vision to develop properly
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1705722/>

Early Diabetic Retinopathy

- Diabetes causes fragility of retinal capillaries
- Capillaries leak blood from retina into vitreous [“I’m seeing red.”]
- Factors: Length of time with diabetes, level of control; has been seen in children as young as 5 years old, and in teens who have brittle diabetes or who resist dietary restrictions
- Laser treatment, vitrectomy
- <https://pubmed.ncbi.nlm.nih.gov/23539833/>

Congenital Glaucoma

- Excessive production, or inability to drain aqueous fluid in the anterior chamber (front of eye)
- Pressure on head of optic nerve
- Presence or absence of pain depends on type
- Controlled by medication, laser, or surgery
- First symptom: loss of peripheral field
- May lead to blindness if untreated
- <https://pubmed.ncbi.nlm.nih.gov/31525355/>

Retinitis Pigmentosa

- Deterioration of retina
- Begins in periphery
- Gradually encroaches on central field
- No cure, but treatment may slow progression
- May lead to severe low vision or blindness
- Mobility first, then print access, Braille advisable
- May be associated with hearing loss (Usher Syndrome)
- <https://pubmed.ncbi.nlm.nih.gov/30234647/>

Juvenile Macular Degeneration

- Loss of vision in central field
- First needs related to reading
- Usually maintain intact peripheral field
 - Good for “travel vision”
 - Reduced acuity in periphery

<https://www.webmd.com/eye-health/macular-degeneration/juvenile-macular-degeneration-stargardts>

Albinism

- Absence of pigment in the eyes, skin, hair
- Can be ocular (absent or reduced pigment in the iris and retina) or ...
- Ocular-cutaneous (plus skin and hair)
- Low vision, photophobia, nystagmus
- At greater risk for skin cancer
- <https://www.webmd.com/skin-problems-and-treatments/what-is-albinism>
- <https://www.youtube.com/watch?v=tRM8WPrI8aI>

Nystagmus

- Caused by abnormal function of brain areas that control eye movement.
- Blurred vision because eyes are always moving.
- Abnormal head posture to reduce movement → neck and shoulder problems.

Nystagmus effects

What nystagmus looks like:

<http://www.eyessociates.com/nystagmus>

How the person may view objects:

<http://www.youtube.com/watch?v=Zd2jnKUM--U>

Nystagmus Treatment

- Rare cases: Eye muscle surgery to reduce extent of movement.
- Null point training (train gaze to direction that reduces extent of movement); postural changes.
- Use of magnifier (optical or video) or bringing material closer to enlarge image.

Cortical (or Cerebral) Visual Impairment (CVI)

- Also called Neurological Visual Impairment
- Variety of theories for assessment/treatment
- <https://cviscotland.org/index.php>
- <https://cviteacher.wordpress.com/2014/03/20/57/>
- <https://www.sciencedirect.com/science/article/abs/pii/S0149763419305251>
- <https://www.ourlifeafternicu.com/blog/2018/9/5/cortical-visual-impairment>

CVI (continued)

- <https://discoveryeye.org/cortical-visual-impairment-what-is-it/>
- <https://littlebearsees.org/what-is-cvi/>
- <https://www.aph.org/finding-the-right-product-for-learners-with-cvi/>
- <https://journals.sagepub.com/doi/abs/10.1177/0145482X1811200515>
- <https://startseeingcvi.com/2018/07/23/what-does-my-child-with-cvi-see/>

Color Vision Deficiencies

- Color “blindness” is rare. Most have one or another color deficiency in which they can perceive color but have difficulty distinguishing between certain colors, such as red and green.
- <https://www.westchesterhealth.com/blog/are-you-color-blind-heres-how-to-tell/>
- [https://www.colourblindawareness.org/colour-blindness/types-of-colour-blindness/#:~:text=Monochromacy%20\(achromatopsia\)&text=Achromatopsia%20is%20extremely%20rare%2C%20occurring,inside%20in%20normal%20light%20conditio ns.](https://www.colourblindawareness.org/colour-blindness/types-of-colour-blindness/#:~:text=Monochromacy%20(achromatopsia)&text=Achromatopsia%20is%20extremely%20rare%2C%20occurring,inside%20in%20normal%20light%20conditio ns.)
- Achromatopsia, which includes significant low vision, is extremely rare occurring in approximately 1 out of 33,000 people.
- <http://www.achromatopsia.info/low-vision-care/>

But wait! There's more!

- But not in this file
- These are some of the more common conditions you are likely to see in children
- There are many others, like genetic and metabolic syndromes with a wide range of ocular and systemic effects
- If you encounter ones not covered here, you'll do what we did:
- Google!