

Addressing the Needs of an Underserved Population: Occupational Therapy for Students with Low Vision

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Introduction

- Low vision is often under-reported and, therefore, students with a low vision diagnosis are underserved.
- Frequently, the low vision condition is a secondary diagnosis or may not even be listed as a diagnosis.
- Having a low vision condition limits students' ability to perform school-based activities with ease, and impacts learning and socialization.
- This course presents the typical eye conditions that cause low vision impairments for school-aged children and strategies to manage the impact of these impairments. Topics to be covered include low vision diagnoses, evaluation, use of optics, lighting, contrast, & distance, optimal positioning, mobility and safety.

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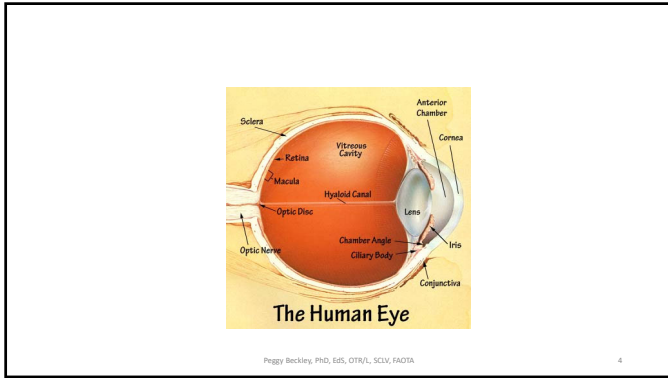
Course Objectives

- After completing this session, participants will be able to:
 - Increase awareness of needs of students with a low vision diagnosis.
 - Describe the impact low vision can have on a student's safety and performance
 - Identify strategies that can be used to decrease the impact of a low vision impairment on a student's performance in school-based occupational therapy
 - Report how to use resources and find additional services for a student with a visual impairment.

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Low Vision and Legal Blindness

- Low Vision
 - Cannot be corrected with lenses or surgery
 - Visual Acuity: 20/70 – 20/200
 - Loss in central or peripheral fields that effects both eyes
- Legal Blindness
 - Visual Acuity: 20/200 or worse in the better eyes and a visual field less than 20 degrees

Whitaker et al 2017

The diagram shows a visual field with a central blind spot. The right eye's field is marked with a red line and the left eye's with a blue line. Degrees are marked at 15, 30, 45, 60, and 95 degrees on both sides. A legend indicates: RIGHT EYE (red line), LEFT EYE (blue line), and BLIND SPOT (black dot).

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Four Most Common Causes of Low Vision

Glaucoma

Diabetic Retinopathy

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Cataracts



Macular Degeneration



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Causes of Visual Impairment in Young Children

Acquired Pediatric Eye Conditions

- Infection
 - Toxoplasmosis
 - Cytomegaloviral (CMV)
 - Herpes
- Retinopathy of Prematurity (ROP)
- Trauma

Congenital Pediatric Eye Conditions

- Albinism
- Amblyopia
- Aniridia
- Congenital Cataracts
- CHARGE Syndrome
- Coloboma
- Cortical Visual Impairment
- Optic Nerve Hypoplasia
- Microphthalmia
- Myopia
- Nystagmus
- Retinitis Pigmentosa
- Retinoblastoma
- Strabismus
- Glaucoma
- Hemianopia

Poggrund & Fazzi, 2002

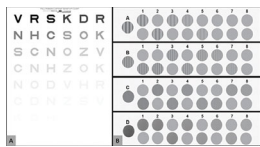
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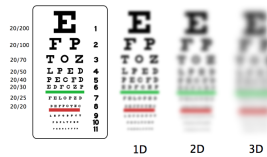
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Expressions of Low Vision

Challenge with Contrast



Decreased Visual Acuity



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Limited Light Reaching Retina Too Much Light Reaching Retina

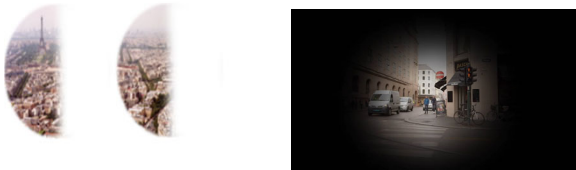


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Decreased Visual Fields




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Expressions of Visual Impairment

- Often decreases ability to recognize faces, read, locate a landmark
- May limit ability to anticipate what/who may be approaching, decreasing time to react to object or person
- Can cause challenges in postural control and balance



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Considerations for Intervention

- Obtain the latest ophthalmology/optometry report for student
- Impact of co-morbid conditions/diagnoses
- Interests of student/parents related to functional skills
- IEP goals
- Low Vision resources available in school, local community, region, state
- Assess impact of low vision impairment on performance in OT
 - Knowing what you know about the student’s visual acuity, visual field, cognitive skills, and postural control, how does visual impairment impede progress?

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Consider Impact of Low Vision Impairment (LVI) on Students’ Safety

- Mobility in classroom, hallways, cafeteria, playground
- Orienting to location in building and finding way to destination
- Locating items in classroom, gym, cafeteria
- Identifying hazardous situations/materials
- Identifying objects in pathway
- Identifying stairways, curbs
- Judging distance on playground equipment
- Awareness of moving objects and people in team games, sports

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Consider Impact of LVI on Typical School and Therapy Tasks

- Reading
- Writing
- Exploring learning objects and playing with toys
- Computer Screen
- Computer Operation
- Eating Lunch
- Hygiene
- Group Activities
- Tool manipulation – devices (calculator, etc), paint brushes, crayons, utensils, scissors

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Strategies to Decrease Impact of LVI on School-based OT

• Important to consider:

- Light
- Contrast
- Distance
- Magnification



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Lighting

- Shadows
- Low Light
- Uncontrolled Light/Glare
- Changes in Light based on Time of Day
- Effects of Moving from Light-to-Dark and Dark-to-Light
- Directing Light
- Illuminating pathways



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Contrast

- Black on white is often easiest for reading and writing
- Light object, use dark background and vice versa (therapy room, classroom, lunch room)
- Contrasting tape for light switches, keyboard, placement of materials
- Dark or bright tape in bathroom where fixtures are often white
- Place contrasting strip on first/last steps in staircase
- Create contrast for indoor/outdoor environments where there are similar colors in the terrain, buildings, and objects



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Distance

- Reading materials and other therapy objects often need to be moved closer to client/the eyes
- Signage or classroom smart board need to be read from closer proximity
- Optics for distance – various viewing distances
- Optics to increase field of view – decrease detail of objects in field



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Magnification

- Enlarge print on therapy hand outs
- Use of large print books
- Use of hand-held optical magnifiers
- Use of electronic magnifiers
- iPad features for magnification can work for some students
- Consideration of motor skills, cognitive skills, and resources to access devices



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Other Considerations for Supporting Students with LVI ...

- Continued professional development in the area of Low Vision Impairments
- Referral to optometrist/ophthalmologist
- Request for Functional Visual Assessment from a TVI or COMS
- Include specified visual screening or assessment in OT evaluation



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Resources and Services for Clients with Low Vision

- Optometrist/Ophthalmologist with low vision specialty
- TVI, COMS, CLVT, CVRT from <https://www.tsbtigers.org/apps/pages/Outreach-Home>
- Tennessee Low Vision Resources
 - <https://www.enhancedvision.com/low-vision-resources/tennessee-low-vision-resources.html>
- Independent Living Aids, LLC
 - <http://www.independentliving.com/>
- MaxiAids – Low Vision Products
 - <https://www.maxiaids.com/low-vision-products>
- American Printing House
 - <https://www.aph.org/>
- Perkins
 - <http://www.perkinsproducts.org/store/en/>

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Questions or Comments?



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