

SMARTSIGHT™
MAKING THE MOST OF REMAINING VISION

Academy Initiative in Vision Rehabilitation

Level 3: Guide for Academic Programs and Multi-Disciplinary Practices

COMPREHENSIVE VISION REHABILITATION ADDRESSES:

- Reading
- Activities of daily living
- Patient safety and mobility
- Social participation
- Psychosocial well-being
- It includes training, with optical devices, non-optical adaptive devices and alternate strategies, as well as multi-disciplinary supports.

PART 1: LOW VISION EVALUATION

Complete History

- A medical and ophthalmic history
- Social history including living situation, driving history, supports and responsibilities
- History regarding how vision loss impacts safety; including falls, medication errors and safety in the vocational setting
- Enquiry about adjustment to vision loss; coping strategies, anxiety, hallucinations and depression

Assessment of Patient's Goals with Rehabilitation

- Each patient is unique and will be able to describe how vision loss has impacted their ability to do things and what tasks they wish to address with rehabilitation. Consider such activities as; shopping; meal preparation; financial management; medication management; self-care; near tasks; distance tasks; ambulation, using transit and driving.

Assessment of Visual Function

a) Visual Acuity and Refraction

- Record best corrected distance visual acuity. Precise acuity can be measured to very low levels with the Berkeley Rudimentary Vision Test (<http://www.precision-vision.com>).
- Retinoscopy and manifest refraction may be done in a phoropter or trial frame; the later often allowing a wider aperture for the clinician to see the reflex and for the patient to eccentric view. Prescription for new distance eyeglasses is best delayed until completion of occupational therapy training (when the potential benefit of new eyeglasses can be reassessed relative to purchasing other devices) unless the refraction varies substantially from the current.
- Record near acuity, reading add used and distance. Near acuity will change with the reading add. Patients with higher reading adds will read smaller print, despite having the same distance visual acuity

b) Contrast Sensitivity

Loss of contrast sensitivity impacts function greatly. Contrast sensitivity measurement offers insight into difficulties with performance and points the way to potential solutions.

c) Central Field: Scotomas and Fixation

The size, shape, position of any central scotomas and the location of fixation relative to a scotoma impact the performance, choice of device and specific patient training. Patients may fixate with the fovea or use eccentric fixation (Preferred Retinal Locus or PRL). Assessment of the scotoma and fixation assists in optimizing rehabilitation interventions.

Scotoma and fixation can be determined using perimeters which monitor fixation by tracking retinal location. Three devices are available commercially, two use scanning laser ophthalmoscope technology (OPKO and MAIA) and a third uses a camera to view the retina (NIDEK). A method using flashcards or a modified tangent screen, conducted at near with a laser pointer, each offer useful information about binocular scotomas and facilitate patient education about scotomas.

d) Peripheral Field, Glare, Color Vision

Map peripheral field, as indicated, with manual, automated perimetry or confrontation field. Glare and color vision are sometimes measured.

Assessment of Performance on Visual Tasks

- Continuous print reading should be assessed noting errors, fluency and the size of print read. To read continuous print without fatigue, one must be able to read two or three lines smaller than desired text size.
- Observe ability to spot read visual targets such as labels
- It may be informative to observe how a patient completes a task that is important to them such as reading a medication bottle, writing a check, using their cell phone or reading email.
- Observe ambulation

Assessment of Magnification Requirements, Tolerance for Devices, and Application of Devices to Desired Tasks

The appropriate power and type of device vary widely even with identical acuities depending on contrast sensitivity, scotoma/PRL pattern, and the patient's physical attributes and needs. Patients with poor contrast sensitivity, for example, may require an illuminated magnifier or video magnifier. A small seeing area of retina surrounded by scotoma may necessitate a screen reader to present text on the computer monitor in audio format. A tremor or upper limb paresis may preclude the use of a handheld device.

Assessment of Benefit of Non-optical Devices

A wide range of non-optical devices are available and are of benefit to many patients according to individual goals.

Counseling and Advice

Counsel and advise the patient and family regarding:

- The disease process and its implications on performance
- Charles Bonnet Syndrome: Hallucinations associated with visual impairment
- Minimizing risk: nutritional supplementation, smoking cessation, diet

- Fall prevention. A pamphlet is available from the CDC (<http://www.cdc.gov/pubs/ncipc.aspx>)
- Adjustment to vision loss and risk of depression
- Support groups, peer counseling, and/or professional counseling
- Local and national resources such as community transportation, talking books (<http://www.loc.gov/nls/>)
- Veterans Vision Rehabilitation Services; if eligible

Order for Rehabilitation Training

The physician's order for Medicare-reimbursed occupational therapy rehabilitation training should include: primary code (impairment), secondary code (disease causing impairment), the patient's need for rehabilitation and potential to benefit, the therapy ordered, frequency and duration of treatment, and safety concerns.

PART 2: REHABILITATION TRAINING

Occupational Therapy Assessment

Rehabilitation begins with the therapist's assessment of the patient's current level of performance with respect to desired and necessary tasks, consideration of contributing physical, cognitive, psychosocial and environmental factors, and setting of clear, achievable therapy goals in collaboration with the patient.

Rehabilitation Training

Rehabilitation training may include any or all of the following:

- Scotoma awareness and efficient fixation
- Awareness of peripheral field loss
- Visual motor skills including scanning, tracing, tracking and target localization
- Reading and writing techniques and training
- Visual perceptual skills in, for example, CVA-related visual impairment
- Application of optical devices to specific tasks; care of devices
- Application of non-optical devices for specific tasks
- Adaptations to the environment in order to enhance safety and ability to do tasks: lighting, contrast, organization, labeling, glare control, hazard removal, and other safety measures
- Use of computer accessibility: magnification, contrast enhancement, cursor modification, speech output
- Safe mobility in home and community: use of support canes, glare filters, and monoculars for orientation and spotting [Long cane training is done by Certified Orientation and Mobility Specialists (COMS)]
- Recreational and avocational activities assessment and training
- Workplace assessments and adaptations
- Caregiver support and training
- Driver evaluation and training (not reimbursable by Medicare) and discussion of alternative transportation options
- Referral to further services as indicated. For example, State Society for the Blind, Veteran's Administration Services, Orientation and Mobility Training, balance rehabilitation services, hearing rehabilitation services, psychology or psychiatry, support groups or aging community service agencies

E. Suggested Reading

1. American Academy of Ophthalmology ONE. Web-course Legal blindness, Foveal-sparing scotomas, Charles Bonnet Syndrome. <http://one.aao.org/CE/EducationalContent/Courses.aspx>
2. American Academy of Ophthalmology. Clinical Optics. Section 3, Basic and Clinical Science Course. 2012. <http://one.aao.org/CE/EducationalProducts/BCSC.aspx>
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17. Jackson ML, Bassett K, Nirmalan pv, Sayre EC. Contrast sensitivity and visual hallucinations (Charles Bonnet Syndrome) in patients referred to a low vision rehabilitation clinic. *Br J Ophthal* 2007;91:296-
18. Langelaan M, de Boer MR, van Nispen RMA et al. Change in quality of life after rehabilitation: Prognostic factors for visually impaired adults. *Int J Rehabil Res* 2009; 32:12-19
19. Lee AG, Beaver HA (eds). *Geriatric Ophthalmology*. 2009 Dordrecht:Springer
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21. Smith HJ, Dickinson CM, Cacho I et al. A randomized controlled trial to determine the effectiveness of prism spectacles for patients with age-related macular degeneration. *Arch Ophthalmol* 2005;123:1042-50.
22. Stelmack JA, Tang SC, Reda DF et al. Outcomes of the Veterans Affairs Low Vision Intervention Trial (LOVIT). *Arch Ophthalmol* 2008;126:608-17.
23. Trauzettel-Klosinski, S. Rehabilitation for visual disorders. *J Neuro-Ophthalmol* 2010; 30: 73-84
24. Warren, M. Barstow, B. *Occupational Therapy interventions for Adults with Low Vision*. AOTA Press. 2011.



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