

OCCUPATIONAL THERAPY AND A COMPREHENSIVE APPROACH TO LOW VISION

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- Co-author of revised California Central Visual Field Test

TRAINING, REHABILITATION, LOW VISION????

- What exactly is modern low vision and what is the optometrist's role?

SURVEY OF OPTOMETRIC LOW VISION REHABILITATION TRAINING METHODS FOR THE MODERATELY VISUALLY IMPAIRED

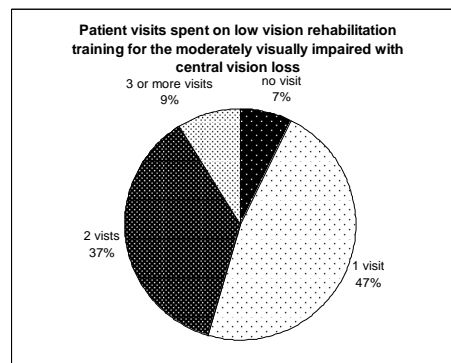
R Kammer, C Sell, R Jamara, E Kollbaum, 2010

- Goal: to explore the low vision rehabilitation practices of optometrists who prescribe devices for the moderately impaired AMD patient.

SURVEY OF LOW VISION ODS

- 136 responses
 - Approx 69% were private practice ODs
 - Balance were rehab, education, or other
- Who completes training?
 - 54% of respondents performed the training themselves
 - 15% used an OT
 - 18% hired a technician
 - The rest used a rehab teacher or didn't train at all
 - Training is not performed in the patients home

Figure 2 Number of training visits for low vision rehabilitation.



SAMPLE SURVEY QUESTIONS

- ◉ Training involves practice with eccentric viewing strategies.
 - All the time
 - Most of the time
 - Some of the time
 - Never
- ◉ Training includes use of the device in spotting activities (i.e. mail, bills, medicine labels, phone books, and/or food packaging labels).
 - All the time
 - Most of the time
 - Some of the time
 - Never

CONCLUSIONS

- ◉ Low vision optometric practitioners were rarely prescribing reading rehabilitation training longer than 2 visits for moderately visually impaired AMD patients.
- ◉ Most ODs provide a high level of optical device training but incorporation of other training strategies was less frequent.

WHAT IS "TRAINING" OR "REHABILITATION"? DEPENDS WHO YOU TALK TO.....

- | OT | OD |
|---|---------------------------------|
| ◉ term "rehabilitation" | ■ Terms not consistent |
| ◉ safety and falls | ■ optical device training |
| ◉ home assessments | – Lighting, Focal point, Optics |
| ◉ emotional status | ■ eccentric viewing... maybe? |
| ◉ referral for resources for transportation, counseling | |

WHAT IS REHABILITATION?

- ◉ Home Safety
- ◉ Eccentric viewing
- ◉ Device adaptation
- ◉ Near-point functions
- ◉ Distance/driving functions
- ◉ Daily living skills
- ◉ Teaching Independence/Social integration
- ◉ Orientation and Mobility
- ◉ Psych support/referral

WHO NEEDS REHABILITATION?

- ◉ Patients who have difficulty completing ADL'S (activities of daily living) due to visual impairment.
- ◉ Potential for improved functioning.
- ◉ For Medicare.....
 - Vision 20/70 or worse in the better eye.
 - Or use central scotoma code instead of VA

WHY UTILIZE OCCUPATIONAL THERAPIST?

- ◉ Occupational therapy is skilled treatment that helps individuals achieve independence in all facets of their lives. It gives people the "skills for the job of living" necessary for independent and satisfying lives

OT SERVICES TYPICALLY INCLUDE:

- Individualized treatment programs to improve one's ability to perform daily activities
- Comprehensive home and job site evaluations with adaptation recommendations
- Performance skills assessments and treatment
- Adaptive equipment recommendations and usage training
- Guidance to family members and caregivers

WHY OT IN LOW VISION?

- Trained in disability and aging.
- Able to address physical, psychological, cognitive and social needs.
- Focus is positive---on improving daily functioning.
- Not a replacement for the blindness system.
- Reimbursed by Medicare and other ins.

THE OD AND OT PROCESS

- Low Vision Evaluation, OD
 - History, Distance Acuities, Refraction, Central Scotoma, Contrast, Reading Acuity, Response to Magnification
- Refer for OT evaluation
- OT Assessment
- OT Training Sessions (2-6 sessions)
- Update OD on progress
- Refer back to OD for prescribing decisions
- Finalize OT Training with prescribed devices

INITIAL OT EVALUATION

- Patient's history, prior level of function in ADL, work and productive activities.
- Functional activities that patient can and cannot perform due to visual impairment.
- Reading and writing assessment.
- Contrast test (if OD doesn't perform) and lighting
- Central field assessment (functional) based on OD field
- Patient's Physical status
- Patient's Cognitive status

PLAN OF CARE

- Developed with patient and family members to determine goals and outcomes (in-line with OD evaluation).
- Short term goals-updated monthly.
- Long term goals-functional outcomes.
- Needs to be signed by the referring MD or OD - state laws. (A few states do not allow OD to sign)

OT TREATMENT PLAN

- Average of 4-6 sessions 1½ to 2 hours.
- Sessions in patient's homes or in-office

Example of First session:

- Education regarding contrast and lighting.
- Lighting assessment.
- Education regarding use of remaining vision. --- Central field loss vs. Peripheral field loss

INSURANCE REIMBURSEMENT

- OD refers/writes orders (signs referral)
- OT carries out the orders
- Usually only OT's are licensed to carry out therapy
 - Training by optician, OTA's, CLVTs, technicians will not be reimbursed

RELATIONSHIP OPTIONS

Billed by OD

OT is employed by OD (incident to - most tx done in office)

OT is independent contractor, paid fee for service

OT is employed by OD, salaried, use OT MCR number for billing (advantage, home visits)

Billed by OT (referral relationship only)

OD receives no compensation

REIMBURSEMENT

- OT Evaluation - about an hour - \$100
- Billed according to time - 15 minute increments
- Reimbursed between \$25-35/unit
- Utilize OT codes
 - 97530 - Therapeutic Activities (Eccentric Viewing)
 - 97353 - Self Care & home management
- From 6 to 12 hours (depends upon region)
- Must show progress connected to goals

REVENUE EXAMPLE

- OD and OT
- If conservative arrangement of 70/30 split with 30% to you (OT as per diem)
- \$120/hr paid by MCR
- \$36 per hour for each of 4-6 visits
- For each patient who works with OT,
- If 1 of the 4 patients need OT services, total additional NET revenue = \$216 per half day

A FEW OTHER THINGS I LEARNED ALONG THE WAY

- Partnership
- Trust
- 3 patients a day for the OT is minimum to pay salary and bring in extra revenue
- Offer both in-home and in-office visits
- Pick a driving radius
- Salary range

LOW VISION
EVALUATION

1) LOW VISION CASE HISTORY

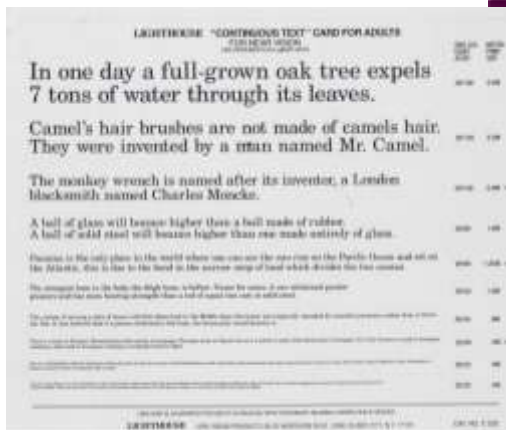
- Purpose of Case history
 - Identify realistic visual goals
 - Guides the prescribing process
 - OD is always thinking ahead
 - Assists in determining what level of care is needed

GOALS: DIVIDED IN SPECIFIC AREAS

- Near Vision needs/abilities
- Distance needs/abilities
- Activities of Daily living issues
- Social History
- Illumination and Glare needs
- Mobility needs
- Job related needs

2) UNCORRECTED AND ENTERING VISUAL ACUTIES

- Distance Low Vision Chart
 - Range greater than 20/200
 - Flip charts can be portable and easy to use
- 3 meter test distance (10 feet)
 - Some ODs use 1 meter
- M notation is easy to use
 - linear (follows logMar)
 - 2M is twice the size of 1M
- Example for recording near acuity: 0.4/2M

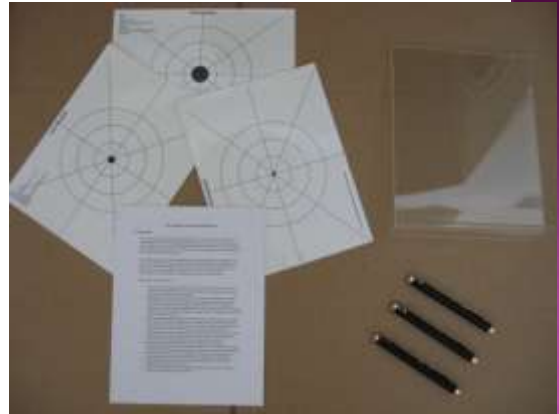


3) REFRACTING DIFFICULT CASES

- Retinoscopy is critical
- Trial Frame Refraction
 - Large lens changes
 - JND rule of thumb: use denominator of 20 foot VA and move decimal point (e.g. 20/200, 2D JND, so use +/- 1.00D lenses)

CALIFORNIA CENTRAL VISUAL FIELD TEST (CCVFT)

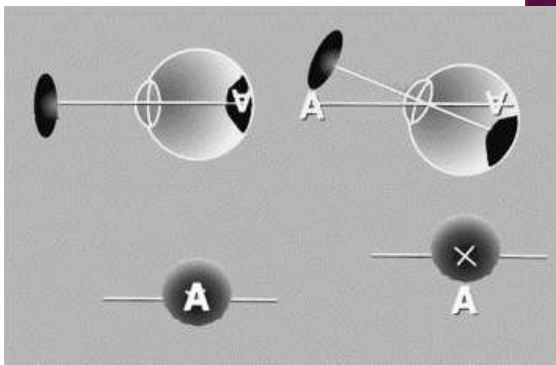
- CCVFT
 - FAST
 - Inexpensive
 - EASY!
- CCVFT has special value...
 - Maps Scotomas (blind spots)
 - Requires practice



CALIFORNIA CENTRAL FIELD TEST DETAILS

- Test distance 57cm (1cm = 1 degree)
- Laser pointer(s)
- Have patient view or attempt to view center of spokes
- Can do OU and then monocularly if needed

CENTRAL FIELD



WHAT IS ECCENTRIC VIEWING TRAINING?

- “The process of aligning the image into a new retinal viewing area is referred to as eccentric viewing (EV)”
- Patients may spontaneously develop EV for an area near the fovea,
 - a preferred retinal locus or area (PRL)
- PRL location and utilization
- Functional implications
- Magnification needs

PRLS AND EV TRAINING

- Schuchard RA, Naseer S, de Castro K. Characteristics of AMD patients with low vision receiving visual rehabilitation. J Rehabil Res Dev, 1999; Oct:36(4):294-302.
- Cummings RW, Whittaker SG, Watson GR, Budd JM. Scanning characters and reading with a central scotoma. Am J Optom Physiol Opt, 1985;Dec:62(12):833-43.
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- Fletcher DC, Schuchard RA. Preferred retinal loci relationship to macular scotomas in a low-vision population. Ophthalmol, 1997;104(4):632-8.
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- Fletcher DC, Schuchard RA, Watson G. Relative locations of macular scotomas near the PRL: effect on low vision reading. J Rehabil Res Dev, 1999;Oct:36(4):356-64.

LOVIT (VA) STUDY RESULTS - OUTCOMES IN FAVOR OF FULL REHABILITATION PROGRAM

- <http://www.lowvisionproject.org/vaevs.htm>

WORK WITH OT/THERAPIST FOR EV TRAINING?

YES

- Absolute scotoma detected or suspected
- Reading speed poor even with large print
- Responds poorly to magnification (predicted acuity not met)

Prob Not

- Acuity typically 20/100 or better (some exceptions exist)
- No absolute scotoma found
- Reads text quickly with magnification or large print

BUT, EVEN IF NO EV, OT IS STILL HELPFUL

- Lighting and glare evaluation
- Reading proficiency
- ADLs in home (is patient safe and able to remain independent?)
- Reinforce use of magnification devices with ADLs
- May only take 1-2 visits

FINDING THE PRL FOR TRAINING

- Many different techniques exist
 - Face description
 - Large clock face
 - Flash cards
- Main point.... TEACH STEADY FIXATION WITH TRL (Best EV spot)

DECISION TIME

- If patient needs EV training, don't prescribe magnifying devices yet
- Consider a hand held magnifier if patient must have something
- Magnification needs vary when patient is not viewing steady or using PRL efficiently
- Start Training, re-visit devices later



TREATMENT AND PRESCRIBING OPTIONS

- 6) Response to Magnification
- 7) Device Evaluation

6) RESPONSE TO MAGNIFICATION

- ◆ After OT visit(s) and patient returns
- ◆ Perform more comprehensive Magnification evaluation
- ◆ Keep goals in mind (e.g. read newspaper)
- ◆ Identify magnification necessary to read newspaper
- ◆ Introduce High addition lenses that will produce desired acuity
- ◆ Introduce Telescopic Magnification that will produce desired goal acuity

CALCULATE MAGNIFICATION NEEDED TO REACH GOALS

- A Common Method = Reciprocal of Vision (ROV)

Denominator of Best Corrected Distance Acuity

Denominator of Goal Visual Acuity

ROV

- Assumes Distance Acuity = Near Acuity
- Goal acuity = 20/40 (meets most visual demands)
- Ex: patient has BCVA = 20/120
ROV = $120/40 = 3X$

7) NEAR PRESCRIBING

- Prescribing a high add at near can create desired magnification (just by patient holding print closer or at the focal point of the lens)
- Multiply 2.5D and the ROV to obtain Equivalent power for near (High add power)

STARTING ADD - ROUGH RULE OF THUMB

- 20/200 patient will require about a +10 D add
- 20/100 patient will require about a +5.00 D add
- This is a very rough starting point without calculations

PRESCRIBING OTHER NEAR LOW VISION DEVICES

- Hand Magnifiers
- Stand Magnifiers
- Dome Magnifiers



8) PRESCRIBING FOR DISTANCE: TELESCOPES

- Used for viewing targets further than 10 feet
- Two Types
- Galilean (2X to 3X)
- Keplerian (3X to 10X)
- Children use for seeing whiteboard in classroom
- Adults use for seeing faces, signs, driving

OTHER TYPES OF TELESCOPES

- Hand Held
- Bioptics
- Sportoculars - sustained distance viewing
 - 3X and 4x



TELESCOPE PRESCRIBING

- Consider refraction
- Does the patient need the Rx to be corrected?
 - Plo-2.50X180 20/60
 - Most likely requires correction prior to magnification



9) LIGHT AND GLARE CONTROL

- Sunlight
- Fluorescent Light
- Modified Fluorescent
- Incandescent Light
- Neodymium Light
- Halogen
- Led (Light Emitting Diode)

FILTERS MAY INCORPORATE MANY FACTORS

- Color
- Transmission
- Transition (photochromaticity)
- Polarization
- Selective Filtration
- UV Coating



FILTERS

- Example: 2% Dark Amber, 40% yellow, 20% plum



10) PRESCRIBING TECHNOLOGY

PORTABLE CCTVS

- Range of Magnification so rarely need calculations
- Great contrast enhancement
- Require steady hands



DESK TOP CCTVS

- Many options
- Range of Magnification so never need calculations
- Great contrast enhancement
- Require steady hands



WHAT ABOUT COMPUTER GOALS?

- Screen Magnification software
- Keyboard Magnification Control (Control-plus or mouse roller ball)
- Accessibility Menu Options

10 STEPS

- Case History
- Acuities
- Refraction
- Contrast Sensitivity
- Fields
- Response to Magnification
- Prescribing for Near
- Prescribing for Distance
- Prescribing for Glare and lighting
- Prescribing Technology

IMT

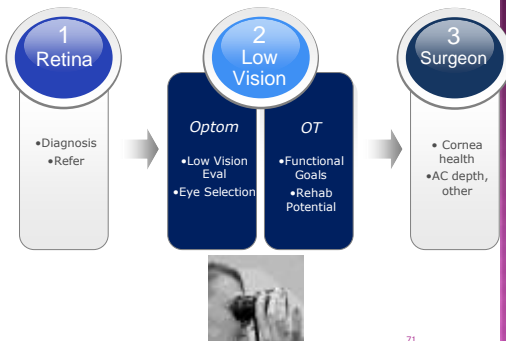
CentraSight™ Program

Multidisciplinary Evaluation & Care

Step	Action	Practitioner
1	Diagnosis	Retina Specialist
2	Candidate Screening	Retina Specialist Low Vision Optometrist
3	Implantation	Surgeon
4	Visual Rehabilitation/Training	Occupational Therapist

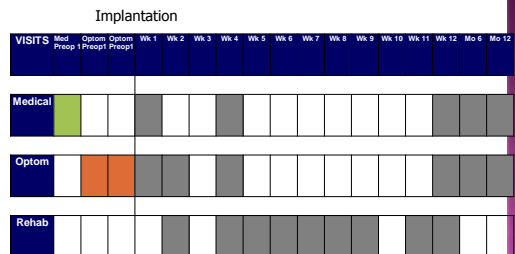
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Telescope Prosthesis Candidacy



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Visit Overview



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Basis of Guide



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Technology

- Wide-angle micro-optics
- Sits in capsular bag after lens extraction
- Near and Distance
 - Standard spectacle Rx



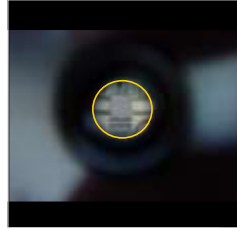
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Field of View

3X Wide Angle Implant = 20°



3X External Telescope = 8°



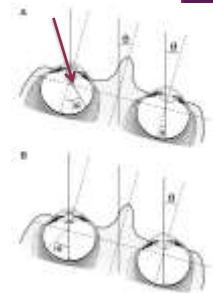
3X implant field of view 625% of external telescope (1,111% if mounted on spectacles)

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Functional Factors

- Both eyes scan together
- Avoids vestibular conflict
- Available on-demand for dynamic & social activities
- Hands-free use
- Compatible with interpersonal interaction
 - Eye contact; face recognition

Implantable Telescope

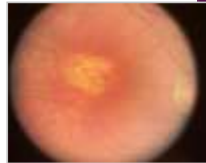


Pell E. (2002) The optical functional ... of an intraocular low vision telescope. Optometry and Vision Science 79(4): 225-233

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Patient Population

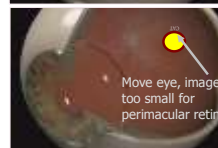
- End-Stage AMD
- Disciform Scar or GA*
- No Active CNV*
- Bilateral Scotomas
- 20/160 - 20/800 BCVA*



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Vision with Macular Scar

Natural Lens / IOL



Telescope Prosthesis (enlarged retinal image)



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Vision with Macular Scar

Scarred Macula

Central Visual Field Projection (Natural Lens/IOL)



Telescope Implant

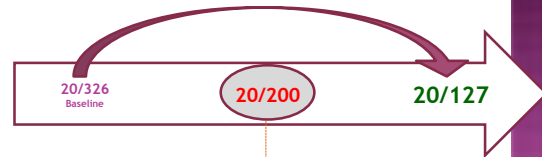
Central Visual Field Projection



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Clinical Trial Efficacy (IMT002)

Mean Improvement with 3X model



Statutory Blindness

Ability to care for self & others*

More able to perform activities of daily living**

Face-face communication†

Source: *Stevenson, **Ebert,†Eiber/Osborn

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Telescope Implant Screening Evaluation

Realistic Goals

- Watch TV
- Recognize people, expressions
- Enjoy hobbies (e.g., fly-fishing, card games, gardening, painting)
- Enjoy social events: parties, movies/plays, sporting events, dining
- Self-care
- Read large print books, mail/email, medicine; write checks, letters

Unrealistic Goals

- Clear immediate vision
- Driving
- Playing tennis, seeing golf ball in flight
- Never need to use low vision aids

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OD ROLE

- Low Vision Exam can be same as IMT screening visit
- Eye Selection is the Key
- Green Light for Implant
- OT role can be part of initial eval or after implant