

Adapting For Independence: Low Vision Rehabilitation

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Viewfinder Low Vision Resource Center

Objectives

- Attendees will gain a better understanding of low vision definitions, legal blindness, and low vision pathologies.
- Attendees will receive insight into how a Low Vision eye exam is conducted and how it differs from typically optometry and ophthalmology exams.
- Attendees will better discriminate between various Low Vision aids, their purposes, and their advantages and disadvantages.
- Attendees will be prepared to discuss basic Low Vision adaptations and accommodations that their patients can make at home, at work, and in other daily life activities.

Who am I?

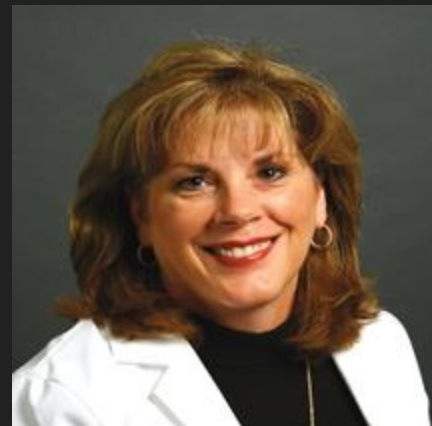


Who am I?



Established in 1992 by Dr. Lynne Noon

- Mission: “To improve the quality of life for those who are visually impaired through awareness, resources, and solutions.”
- Advanced Ocular Diseases
- Hereditary Disorders and Syndromes
- Neurological Conditions
- Stroke, Concussion, Trauma
- Developmental Disability



Financial Disclosures

- I am the owner of ViewFinder Low Vision Resource Center and work there as an optometrist.

What is Low Vision?

- **Any** chronic uncorrectable visual impairment that limits daily functioning
 - Cannot be fixed by: Glasses, Contact Lenses, Surgery, or Medication
- Common Symptoms: Blur, Visual field loss, Central Scotoma, Contrast Loss, Glare, Distortion, Double Vision, Color Loss
- You **can** have 20/20 acuity and still have a visual impairment!

Low Vision Pathologies

Acquired Ocular Diseases

- **Macular Degeneration**
- **Glaucoma**
- **Diabetic Retinopathy**
- Hypertensive Retinopathy
- Ischemic Optic Neuropathy
- Degenerative Myopia
- Stroke
- Trauma
- Ocular Surface Disease
- Thyroid Eye Disease
- Vitamin/Nutritional Deficiency
- Toxic Neuropathy/Retinopathy

Inherited Ocular Diseases

- Retinitis Pigmentosa
- Stargardt Disease
- Albinism
- Congenital Glaucoma
- Retinopathy of Prematurity
- Optic Nerve Hypoplasia / Atrophy
- Leber's
- Nystagmus
- Cone-Rod Dystrophy
- Vitelliform Macular Dystrophy
- Congenital Cataracts
- Corneal Dystrophies
- Coloboma

Vision Impairment Categories

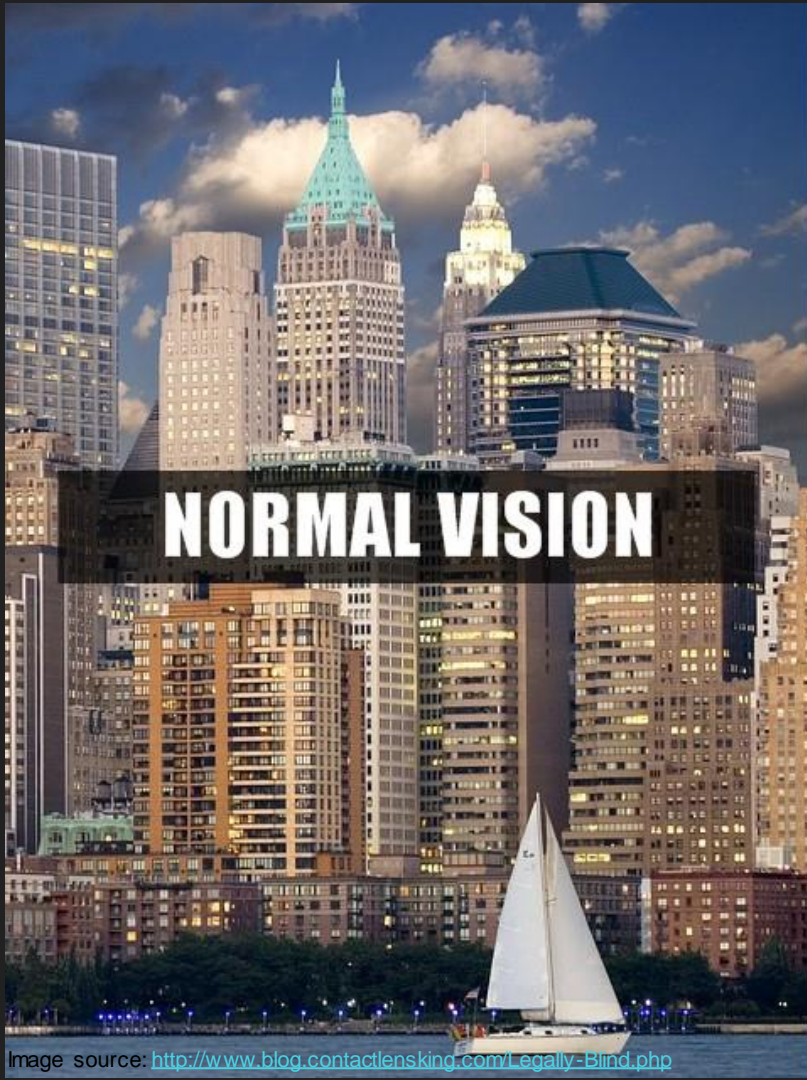
- Normal: Better than **20/30**
- Mild: Better than **20/70**
- Moderate: **20/200 or Better**
- Severe: **20/400 or Better**
- Profound: **20/1200 or Better**
- Near-Total: **Light Perception** or Better
- Total: **No Light Perception**

Legal Blindness

- ~~20/200 or Worse~~
- **2007 Update: Cannot read 20/100**
- 20 degrees of visual field or less

Legal Blindness does not stop you from:

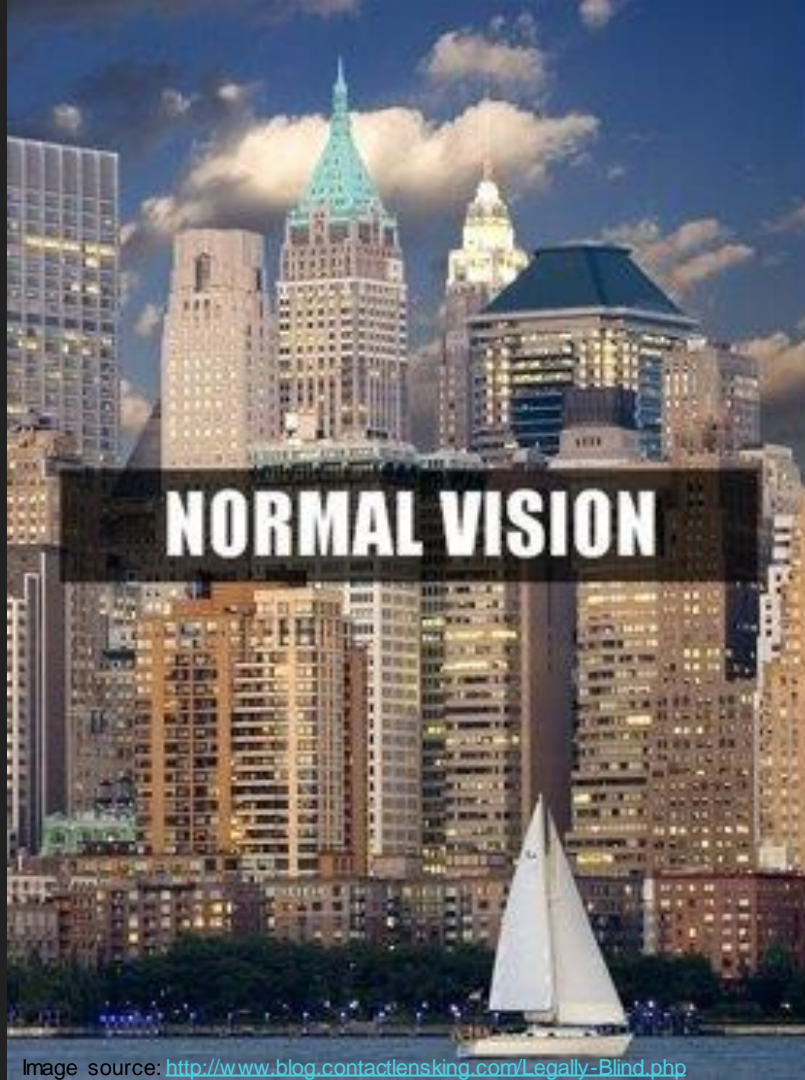
- Driving
- Working
- Independence
- Social Life



NORMAL VISION



LEGALLY BLIND VISION



NORMAL VISION

LEGALLY BLIND VISION



Who really needs to have Vision Rehabilitation?

Where do we draw the line?

What if:

- Acuity is 20/40 or better?
- Scotomas are relative or only paracentral?
- Using sunglasses and A/R coatings for glare?
- Driver's license is still valid?
- Reading is fine with large print?
- No problems at school/work/homes/hobbies?
- No mobility problems at home?
- Spouse/Partner/Family/Caretaker does it for them?

What does a Low Vision OD do?

- **Explore** deep case histories
- **Illuminate** patient goals and desires
- **Adapt** examinations to patient needs
- **Refract** for a detailed optical foundation
- **Provide** personal solutions to lifestyles and goals
- **Counsel** with patients on outcomes, options, and opportunities
- **Conduct** vital networking with state agencies, non-profits
- **Train** patients to use devices for complex tasks

Simulating Low Vision



How Is a Low Vision Exam Different?

- Case History
- Visual Goals and ADLs
- Functional Exam
- Different VA Charts
- Metric Near VAs
- Trial Frames
- Rehabilitation
- Referrals

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Low Vision Survey Questions

- Are you a current driver?
 - Daytime/Nighttime?
 - Signs/Traffic Lights?
 - Local/Traffic/Distance?
- Vision impeding walking?
 - Curbs/Stairs?
 - Tripping/Falling?
 - Familiar/Unfamiliar areas?
- Home Environment
- Employment
- Social Life
- Current Tools
- Faces
- TV
- Cooking
- Cleaning/Chores
- Arts/Crafts
- Reading
- Medications
- Computer
- Smartphone
- Glare
- Contrast

Goal-Oriented

- Rehabilitation is geared toward **independence** and a **return** to activities of daily living.
- **Personal**
- Work
- School
- Household
- Hobbies
- Travel
- Relationships



AZ Driver License Requirements

Driving with no restrictions: 20/40 vision or better with at least 105 degrees of visual field in one eye.

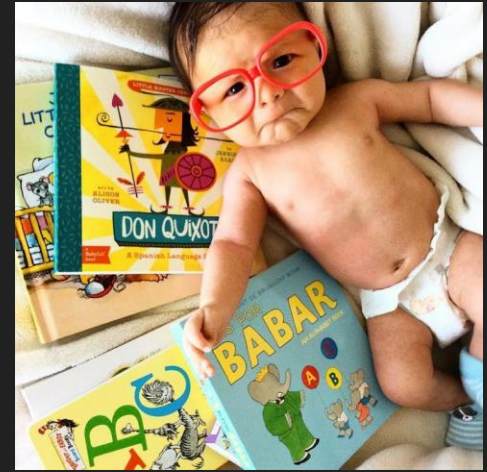
Daylight only restriction: 20/50-20/60 vision or better with at least 105 degrees of visual field in one eye

Bioptic driving restriction: 20/70-20/200 vision or better with at least 105 degrees of visual field in one eye **and** 20/40 vision or better through bioptic of 4x magnification or less.



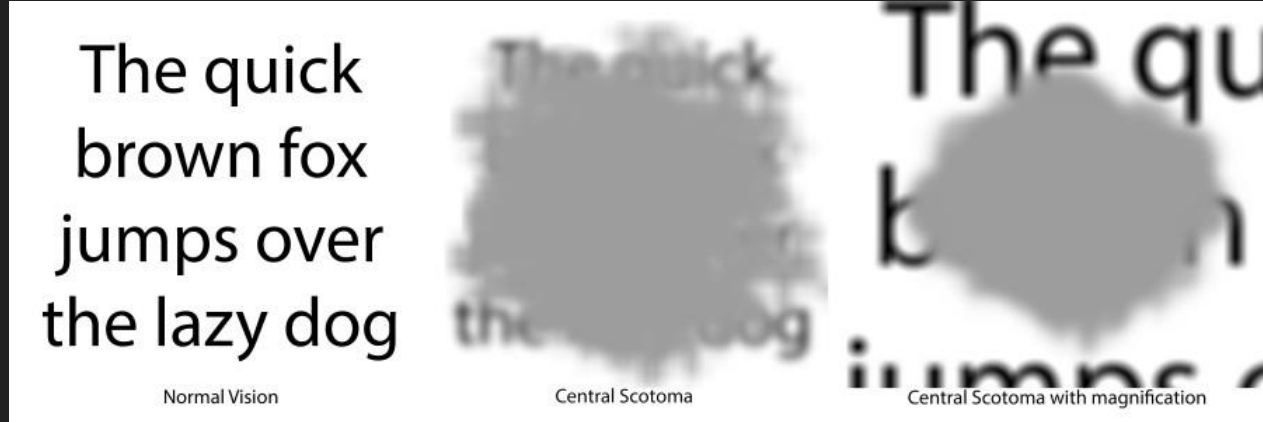
Reading

- **Extended reading vs spot reading?**
- **Electronic vs paper?**
- **Large size print (20pt or larger)**
 - Some books, computer, smartphone, public signs
- **Regular size print (10-14pt)**
 - Books, magazines, recipes, cooking instructions, mail, bills, medical documents, labels on appliances, store tags, and more.
- **Small size print (4-10pt)**
 - Medication labels, owner's manuals, credit card statements, fine print



How Is a Low Vision Exam Different?

- Case History
- Visual Goals and ADLs
- **Functional Exam**
- Different VA Charts
- Metric Near VAs
- Trial Frames
- Rehabilitation
- Referrals



Functional Optometry

- When was your last eye exam? Did they dilate your eyes? Can I get a copy of that record?
 - **Medical concerns:** Anatomy, health, progression, risk factors, genetics, treatment options.
 - **Functional concerns:** Daily activities, working distance, habitual devices, support network
- **Specialty referrals:** Ocular Disease, Specialty Contacts, Orientation & Mobility, Vocational Rehabilitation, Advocacy groups

Functional Optometry

- **OD, OS, and OU acuities are important!**
- **Near acuity threshold vs Reading acuity**
- **Working distance**
- **Binocular function**
 - **Diplopia vs Binocular Rivalry**
- **Eccentric Viewing**
- **Contrast sensitivity loss**
- **Glare control**
- **Hands free?**



How Is a Low Vision Exam Different?

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- **Different VA Charts**
- **Metric Near VAs**
- Trial Frames
- Rehabilitation
- Referrals



Low Vision Acuities

- **Acuities can be tested at many different distances and converted to Snellen**
 - Patient cannot see my 700 size number until I reach 5ft in proximity: 5ft/700 Feinbloom; a 20/2800 Snellen Equivalent
- **Near Acuities written in Metric notation: meters / logMAR score**
 - Patient reads habitually at 20cm due to relative distance magnification; reads 20/20 line = 0.4m / 0.4 M
- **Pediatric/Non-verbal Acuity Testing: Forced Choice, Contrast Gratings, Matching**

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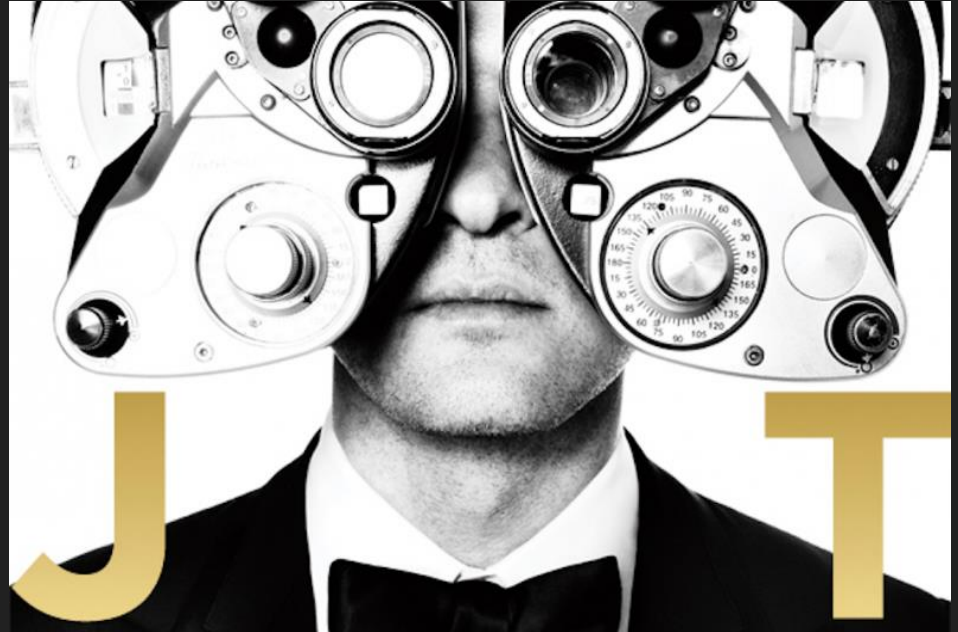


Trial Frames Vs Phoropters

- Trial Frame



- Phoropter



Full-Time Wear for Protection!

- Polycarbonate or Trivex
- Rx, Plano, Sunglasses
- Over **2 million** eye injuries occur in the United States every year, but 90% of those could be prevented by wearing protective glasses!



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- **Rehabilitation**
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How can you Rehabilitate Low Vision?

1. Magnification
2. Illumination
3. Decrease Glare
4. Enhance Contrast
5. Field Expansion
6. Device Training
7. Sight Substitution
8. Community Support

Mary had a little lamb

Mary had a little lamb

Mary had a little lamb

Mary had a little lamb



1. Magnification

1. Size

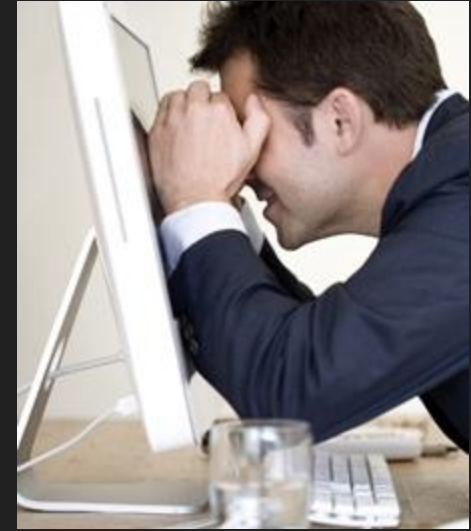
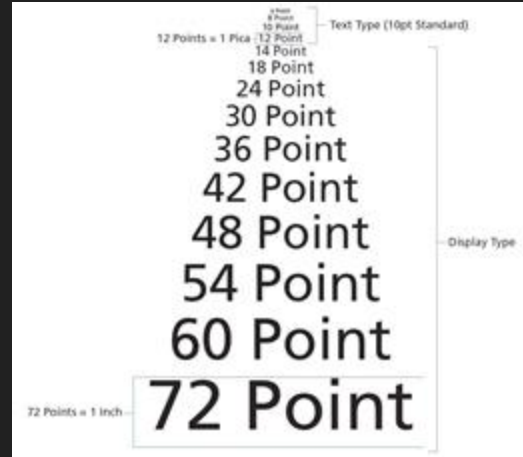
- a. Large print books

2. Distance

- a. How close do you sit to the TV?

3. Angle

- a. Hand Held Magnifiers
- b. Stand Magnifiers
- c. Electronic Video Magnifiers
 - i. Wearables
- d. Telescopes
 - i. Bioptics

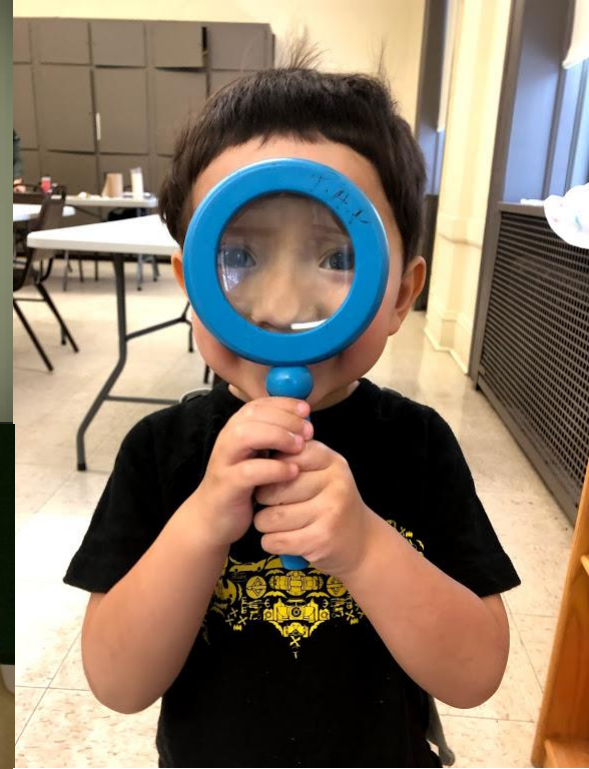
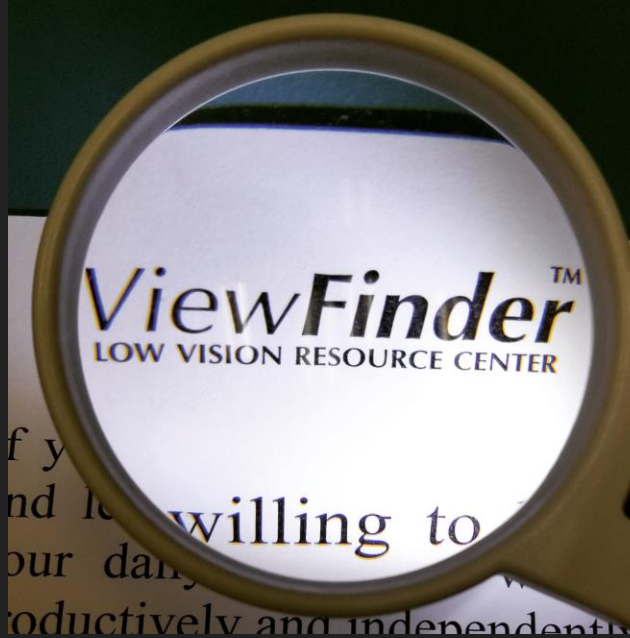


Relative Size Magnification with Computer Technology

- With the correct technology, all visually impaired people can use a computer
- Use a larger monitor
- Both Windows and Apple operating systems have settings for people with decreased vision
- Kindle's, Nooks and IPADS
- Smartdevice Accessibility features
- Smartdevice Applications

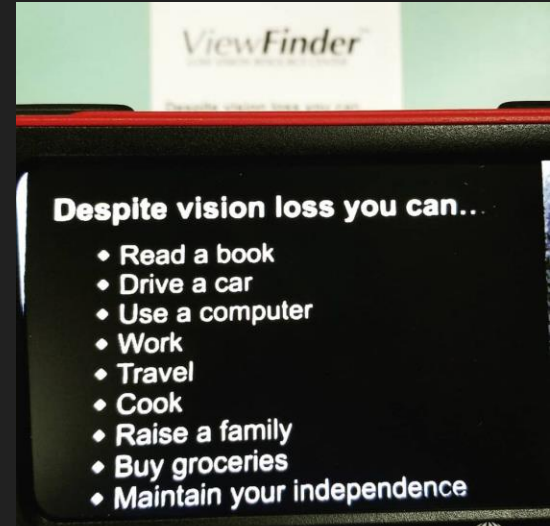
Optical Devices

- Hand-Held Magnifiers
- Stand Magnifiers
- Microscopes
- Telescopes
- Microtelescopes
- Bioptics



Video Magnifiers

- Desktops
 - Large screen, high magnification, but stationary
- Portables
 - Mobile, lightweight, but smaller screen
- Wearables
 - Able to do both distance and near well, portable, largest FOV
- OCR Mode
- Contrast Enhancement
- Freeze frame and internet



Wearables

- IrisVision
 - ESight
 - NuEyes
 - Patriot
 - Eyedaptic
-
- Distance **and** near, Greater FOV, Portable, Contrast Enhancement, Internet, OCR, Voice Assistance



Which solution is the right one?

- **Goals!**
 - **Lifestyle!**
 - **Personal Preference!**
 - **Economy!**
-
- **Prescribing vs Recommending**

2. Illumination

Task Lighting is an essential contribution to any near or intermediate task!

CONTRAST!

CONTRAST!

CONTRAST!

CONTRAST!

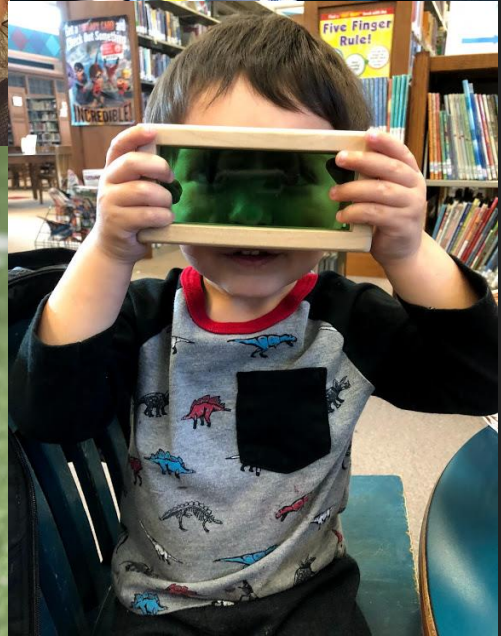


3. Decrease Glare

- Sunlight
- Fluorescent Light
- Digital Screens
- Poorly angled task lighting
- Headlights
- Streetlights

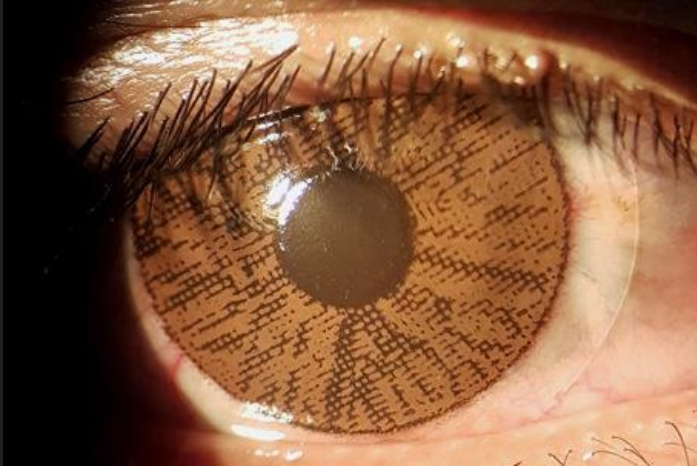
Beat it with:

Tinted lenses, AR Coating,
proper lighting, brimmed hat!



Contact Lenses and Glare

- **Achromatopsia and red CLs**
- **Aniridia and prosthetic CLs**
- **Frosted / Blackout CLs**

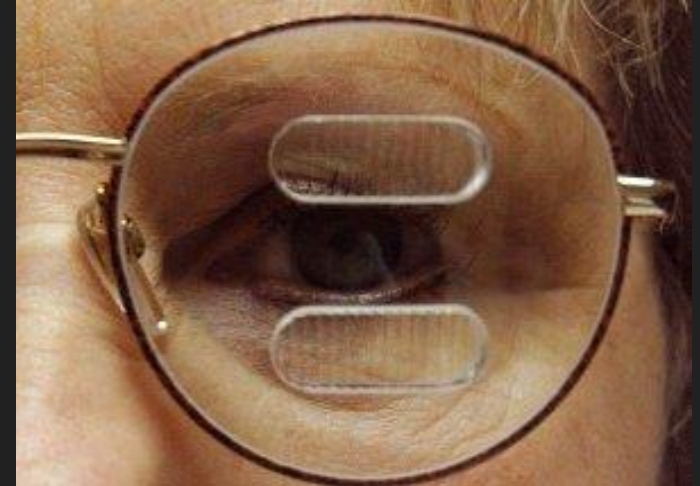
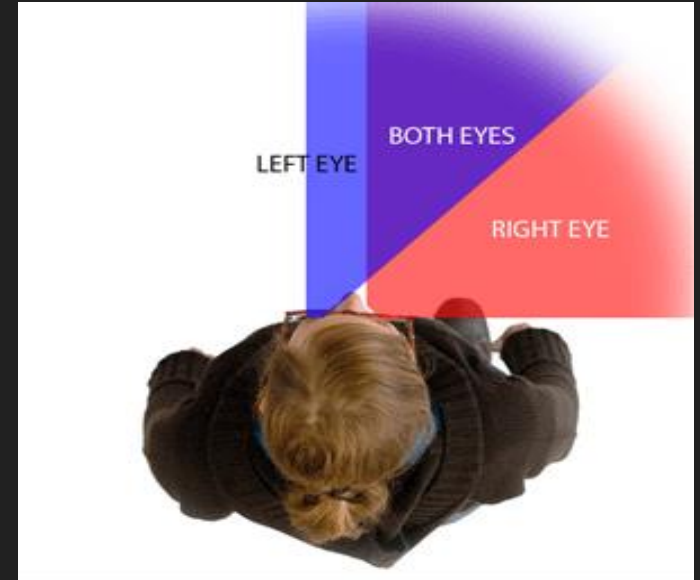


4. Enhance Contrast



5. Field Expansion

- **Visual Field Loss**
 - **Glaucoma**
 - **Stroke**
 - **Retinitis Pigmentosa**
- **Yoked Prism**
- **Peli Prism**
- **Reverse Telescopes**
- **Assistive Tech**



6. Device Training

< Accessibility



Recommended for you



TalkBack



Visibility enhancements



Hearing enhancements



Interaction and dexterity



Advanced settings



Installed services

4 services



About Accessibility



Contact us



7. Sight Substitution



www.seeingai.com



Assistive Tech OCR



Text-to-Speech Apps:

- Seeing A.I.
- AIRA
- Be My Eyes
- Supersense



Orientation and Mobility

- **Field Enhancement**
- **Audio and Voice Tools**
- **Long Cane**
- **Sighted Guide**
- **Guide Dog**
- **Training!!**



8. Community Resources



**Utah
Council
of the Blind**

Utah Assistive Technology Program
Institute for Disability Research, Policy, & Practice



Utah State Library
Program for the Blind & Disabled



**NATIONAL FEDERATION
OF THE BLIND**
Live the life you want.

AFB American Foundation[®]
for the Blind



**American Council
of the Blind**
Together for a bright future



**FOUNDATION
FIGHTING
BLINDNESS**
Together, we're winning.



**INDUSTRIES
FOR THE BLIND AND
VISUALLY IMPAIRED**



**NATIONAL
LIBRARY SERVICE
FOR THE BLIND
AND PRINT DISABLED
LIBRARY OF CONGRESS**

State Programs, Public Agencies, Non-Profits

- Evaluation of candidate for program: Vocational Rehabilitation, Veteran's Health System, Disability Application, Worker's Compensation, Utah Division of Services for the Blind and Visually Impaired, Utah Public Schools, Utah State School for the Deaf and Blind

What do we need to be successful in school or work?

- Level of function: driving, ambulating, desk work, computer work, distance vision, facial recognition, and extended reading.
- Recommend low vision aids needed to perform functions or those able to improve efficiency and quality of work.
- Agencies approve/deny recommendations, refer for training, and provide low vision devices.



**WORKFORCE
SERVICES
REHABILITATION**



UTAH
SCHOOLS FOR THE
DEAF AND THE BLIND

Support and Counseling

- Informational Seminars
 - Device Updates, New Programs
- Low Vision Support Groups
 - Peer Groups
- Personal Counseling
 - Depression, Anger, Anxiety
- Family Counseling
- State and National Associations



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Vision Rehabilitation Team

- Primary Care Doctor
- Systemic Specialties
 - Cardiology, Neurology, Oncology, Rheumatologist, etc
- Ophthalmologist
 - Glaucoma, Retina, Pediatric, Cataract, etc
- Optometrist
 - **That's us!**
- Physical Therapy
- Occupational Therapy
- Orientation and Mobility
- Psychology



- **FAMILY!**
- Friends
- Recreational Teams
- Transportation
- The list goes on...

Partnering With Eye Disease Specialists

- Retina
- Glaucoma
- Neuro-Ophthalmology
- Cataract
- Cornea
- Specialty Contacts
- Vision Therapy
- **Primary Eye Care**
- **Pediatrics**
- Closing the referral loop
 - Reports for every comprehensive exam and pertinent follow-up
 - Requesting most recent examination record
 - Reading records
- Synergy
 - Not a 2nd opinion!
 - Confirm/deny findings
 - Reinforce education and treatment plans

When to Engage for Vision Rehabilitation?

Automatic Referrals

- VAs of 20/50 or worse in better eye
- Visual field defects
- Eccentric Viewing
- Binocular Rivalry / Diplopia
- Unresolvable glare
- Contrast sensitivity loss
- Vision impacting ADLS
- "Glasses don't help!"
- "There's nothing else we can do for you."

Time to Ask Questions

- Difficulty with reading/driving/tv/hobby despite good acuity in office.
- Bumping into things, falling.
- Wearing sunglasses indoors constantly.
- Diplopia w/ ocular disease
- Poor attention and concentration, poor eye contact.
- Patient is dependent on family/friends for basic activities.

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Questions?



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