OT Role in Visual Screening and Referral for Individuals with Neurological Impairment in an Inpatient Setting

Holly Grieves, MS OTRL, CBIS

Marissa Meinema, OTS

Neurovisual Deficit Statistics

8 million people per year suffer a TBI with 1.5 million of those injuries categorized as “major”

500,000 individuals are affected by a CVA each year

20-40% of people with a brain injury experience related vision disorders

(Kerkhoff, 2000)

Neurovisual Deficit Statistics

Individuals with a moderate to severe TBI have a 1/3 chance to have a visual impairment.

Common deficits include:

- Reduced visual acuity
- Visual field loss
- Binocular dysfunction
- Spatial perceptual deficit

(Kerkhoff, 2000)

Session Objectives:

1) Learn how to administer a basic visual screen and recognize the impact of visual deficit on safety and functional performance

2) Articulate OT role in visual screening and impact of individual's visual deficits on functional performance to caregivers

3) Understand the role of visual rehabilitation team members and identify need for referral

Mary Warren's Hierarchical Model of Visual Processing

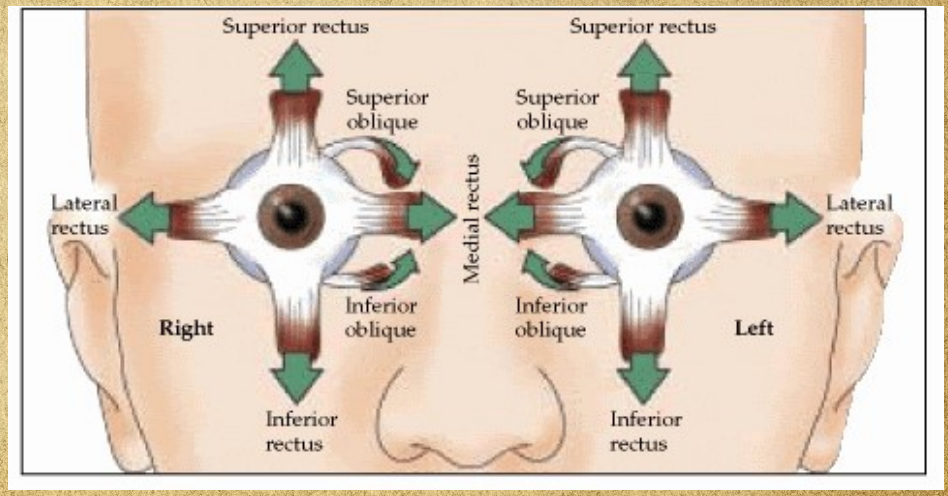
Visual Screen Components

- Clinical Observation!
- Informal Interview:
  - Eye Health Hx
  - Subjective Symptoms
- Symptom Questionnaire
- Oculomotor, Visual Fields & Visual Acuity Screening

Oculomotor Screening Procedures

Oculomotor Control: Efficient movement of the eyes in a coordinated manner allowing for perceptual stability.

- *Alignment*
- *Fixation*
- *Convergence/Divergence*
- *Accommodation*
- *Saccades*
- *Smooth pursuits*
- *Range of Motion*



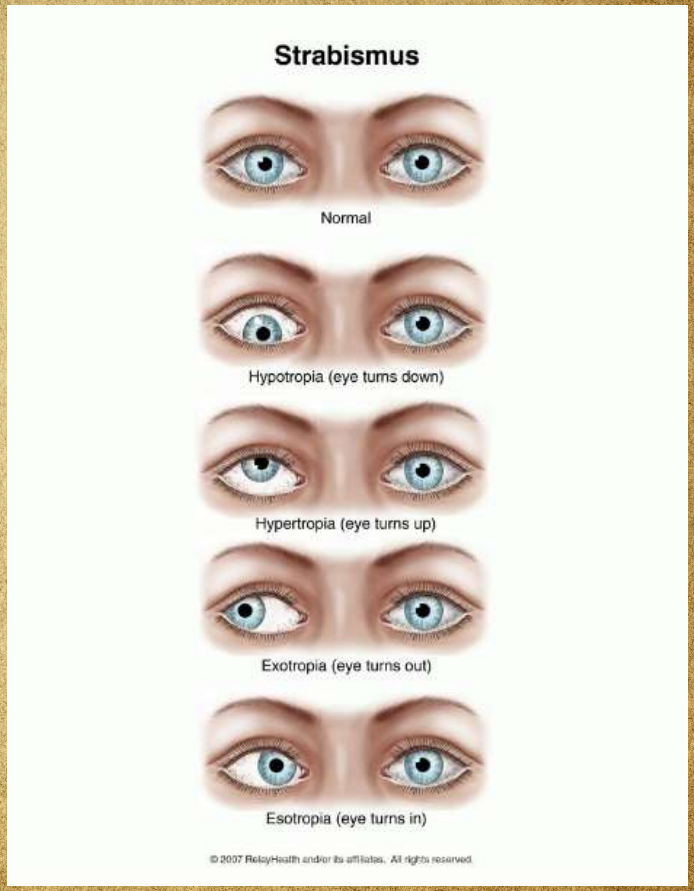
Ocular Alignment & Visual Fixation

Ocular alignment

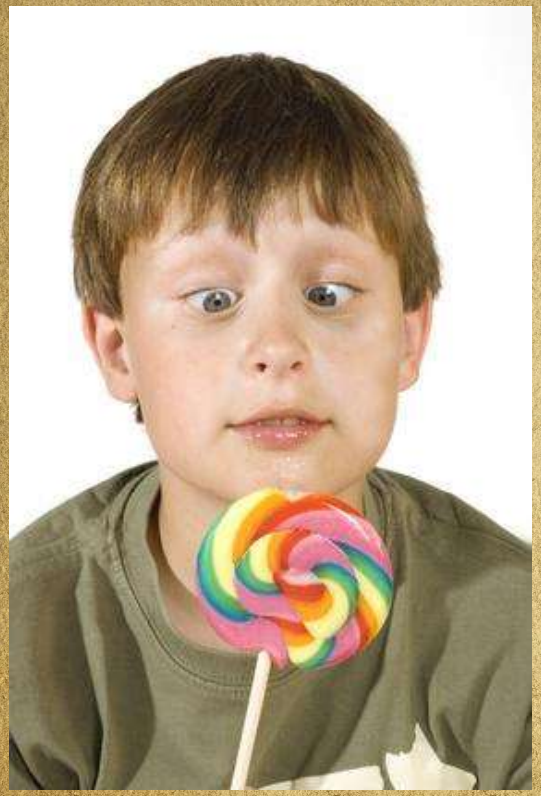
Position of the eyes in relation to one another.

Visual fixation

Ability to maintain gaze on an object.



Convergence, Divergence and Accommodation



Vergence and Accommodation

System that aligns the eyes to allow for binocular vision.

Deficits may result in:

visual fatigue, headache.

Deficits may look like:

Decreased concentration or comprehension.

Saccades

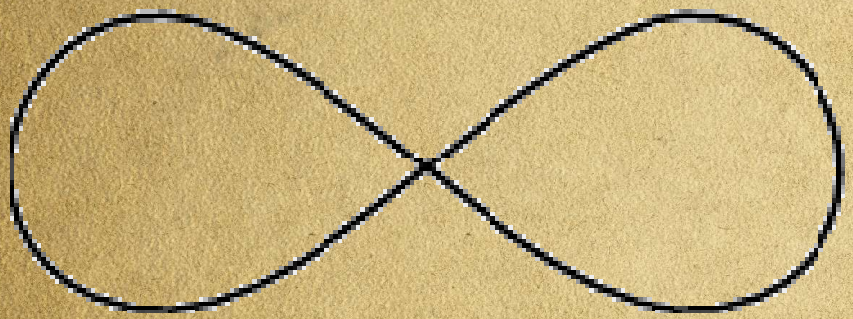
Saccades –

Sequenced rapid eye movements

Deficits may look like:

undershooting/overshooting targets, difficulty shifting gaze, inability to isolate head/eye movements.

Smooth Pursuits/Visual Scanning



Smooth Pursuit

Continuous fixation on a moving target within the central field

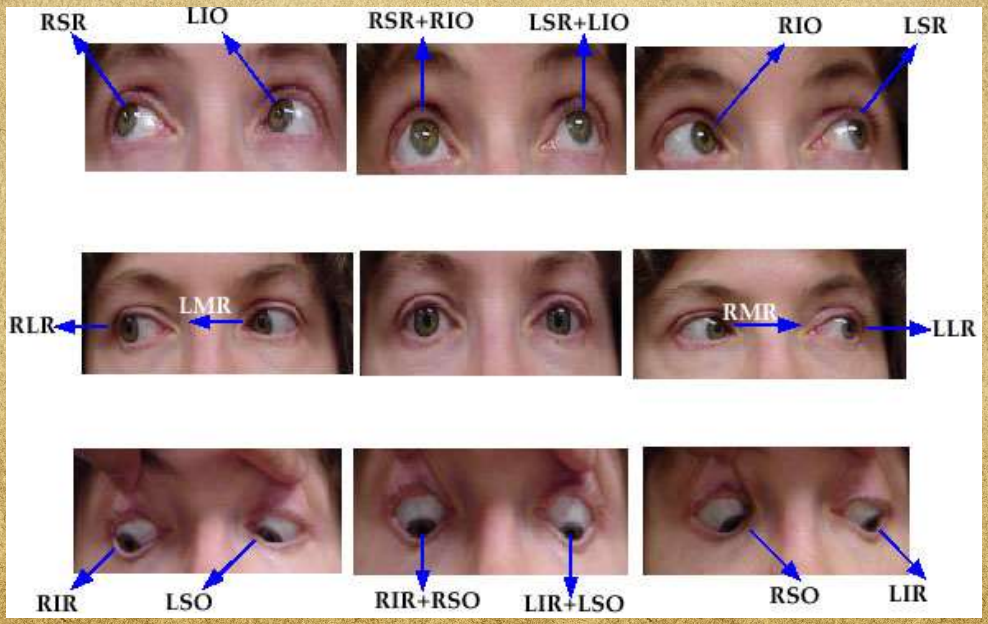
Deficits may look like:

Inability or impaired ability to track across visual field or coordinate both eyes to move in the same direction symmetrically.

Oculomotor Range of Motion

Oculomotor range of motion

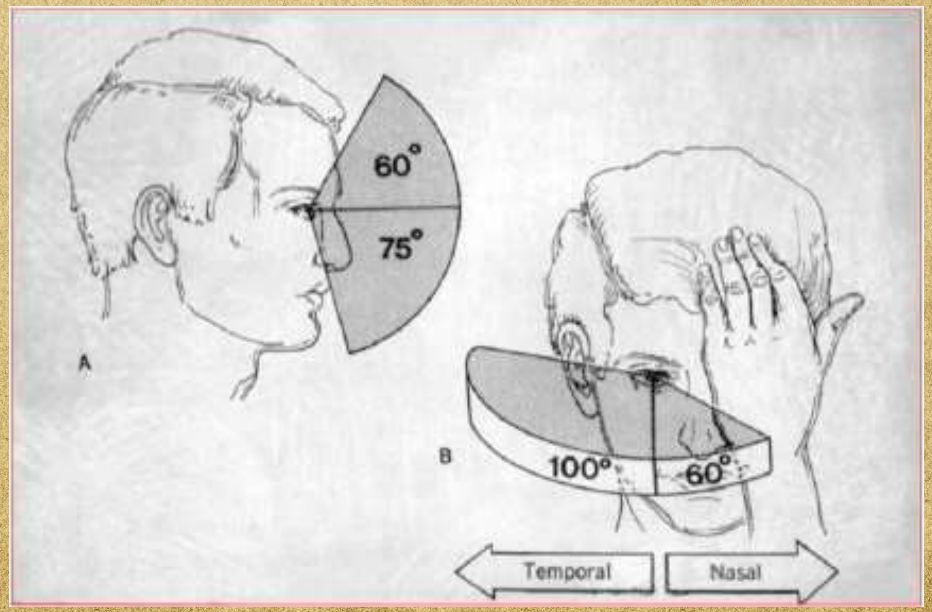
Ability to achieve the extreme movements of gaze in various directions.



Visual Fields: Confrontation Testing

Visual field

Extent of an area visible to an eye in a certain position.



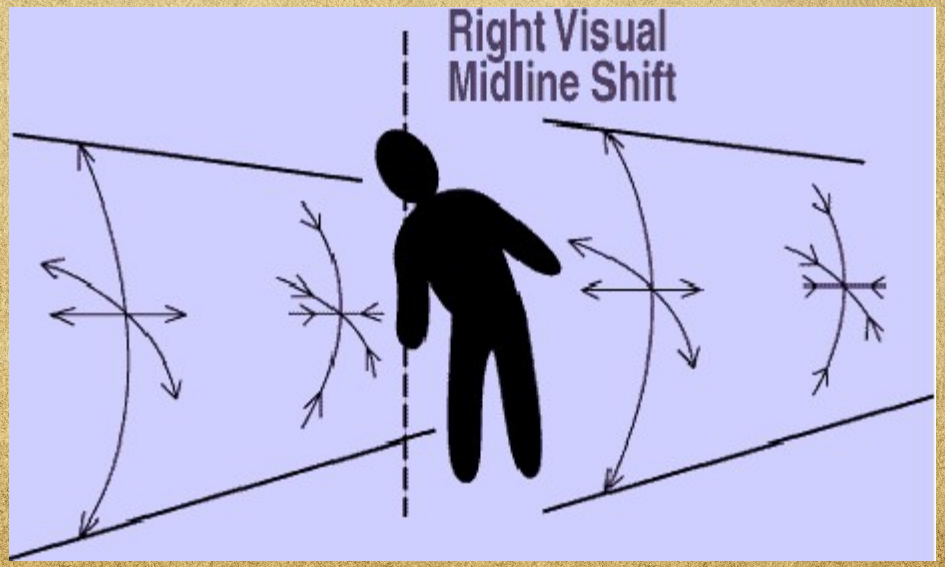
Visual Field Loss Vs. Neglect

Visual Field Loss	Neglect
Confrontation Testing	Assess personal, extrapersonal and motor neglect
Awareness of deficits	Lack of deficit awareness
Compensatory strategies effective	Compensatory strategies tougher to comprehend
Visual deficit only	Multi-sensory deficit
Postural alignment ok	Posture misaligned

Visual Midline Shift Syndrome

Visual Midline Shift Syndrome

A neurological event that often corresponds with hemiplegia or hemiparesis in which the visual field is shifted, resulting in the client leaning away from the affected side.

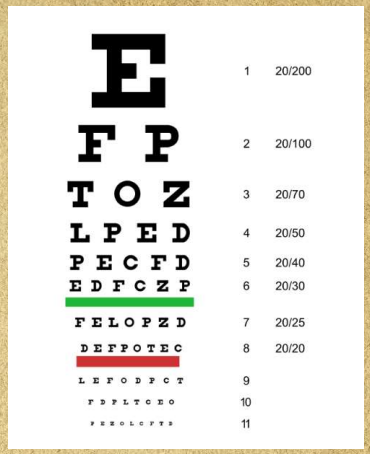


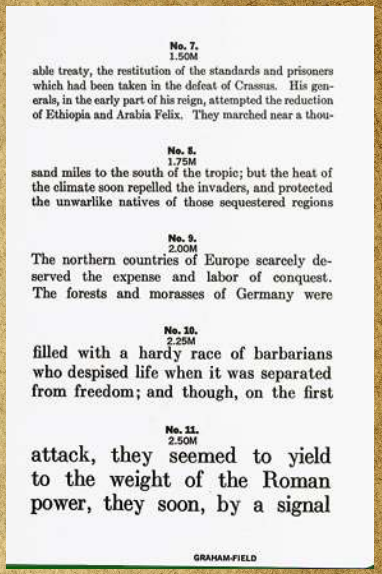
Visual Acuity

Distance visual acuity Ability to discriminate small details while far away from an object.

Near visual acuity Ability to discriminate details at close range.

Functional Screening: Reading a menu, channel guide, name tag, clock on the wall, room signage




No. 7.
1.50M
able treaty, the restitution of the standards and prisoners which had been taken in the defeat of Crassus. His generals, in the early part of his reign, attempted the reduction of Ethiopia and Arabia Felix. They marched near a thou-

No. 8.
1.75M
sand miles to the south of the tropic; but the heat of the climate soon repelled the invaders, and protected the unwarlike natives of those sequestered regions

No. 9.
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The northern countries of Europe scarcely deserved the expense and labor of conquest. The forests and morasses of Germany were

No. 10.
2.25M
filled with a hardy race of barbarians who despised life when it was separated from freedom; and though, on the first

No. 11.
2.50M
attack, they seemed to yield to the weight of the Roman power, they soon, by a signal

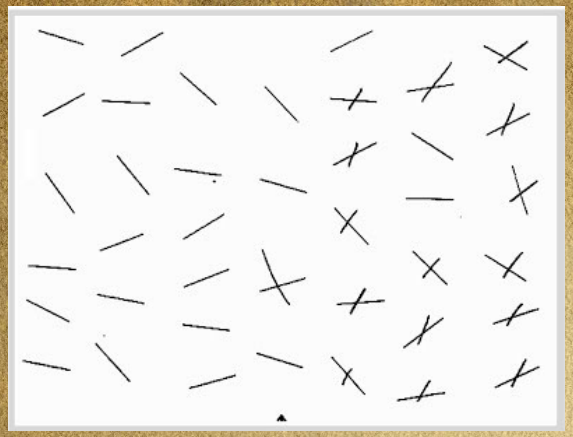
GRAHAM-FIELD

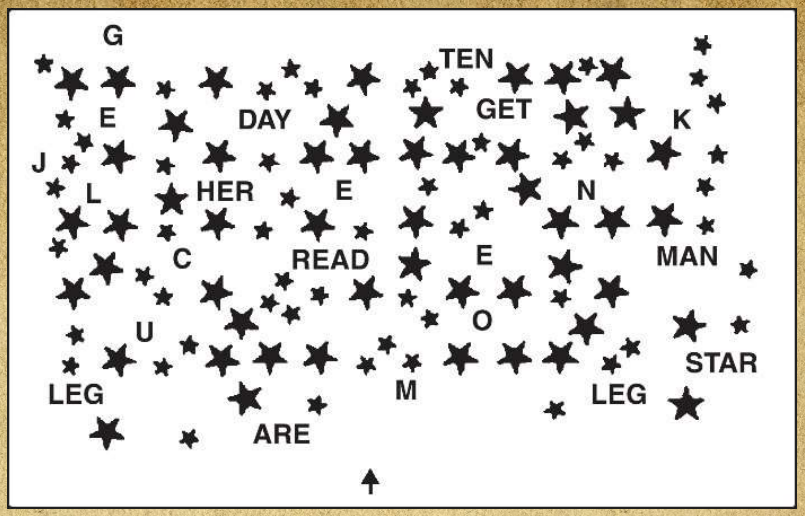
It's More than Acuity!

"Good Vision Is More Than 20/20… it is seeing without effort" – Donald Studt, O.D.

Visual Perceptual Screening

- Catherine Bergego Scale (CBS) (Azouvi, 1996)
- Comb and Razor Test
- Line Bisection Test/Albert's Test
- Star Cancellation Test
- Baking Tray Test
- Arrow Orientation
- Trail Making Test
- Randot Stereopsis
- Motor Free Visual Perceptual Test
- Developmental Test of Visual Perception
- Test of Visual Perceptual Skills
- Beery-Buktenica Developmental Test of Visual Motor Integration

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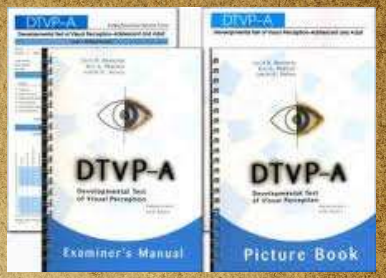
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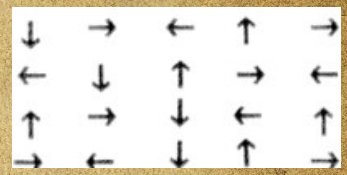
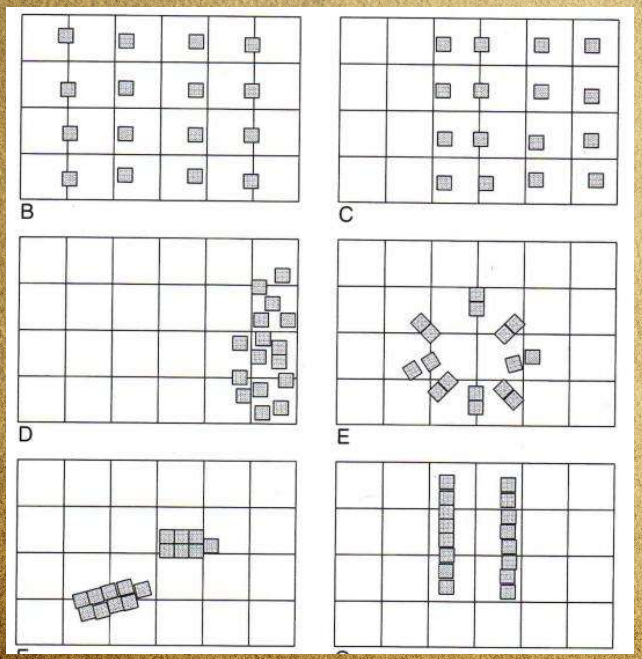
DTVP-A
Examiner's Manual
DTVP-A
Picture Book

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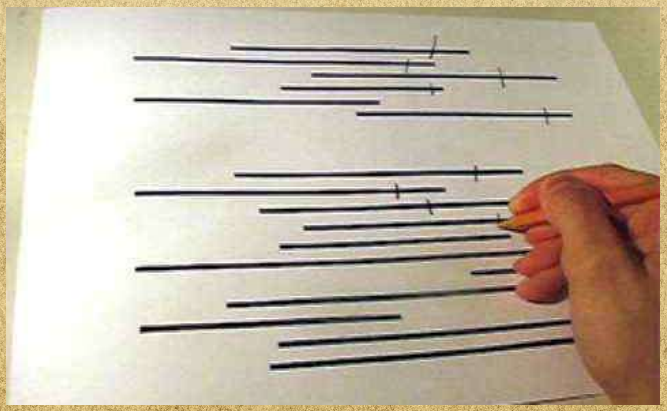
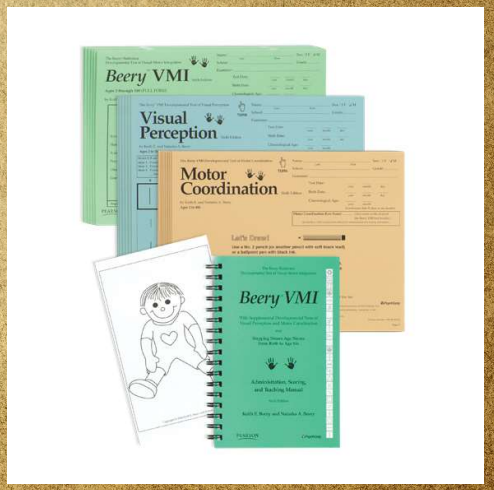



Beery VMI
Visual Perception
Motor Coordination
Beery VMI

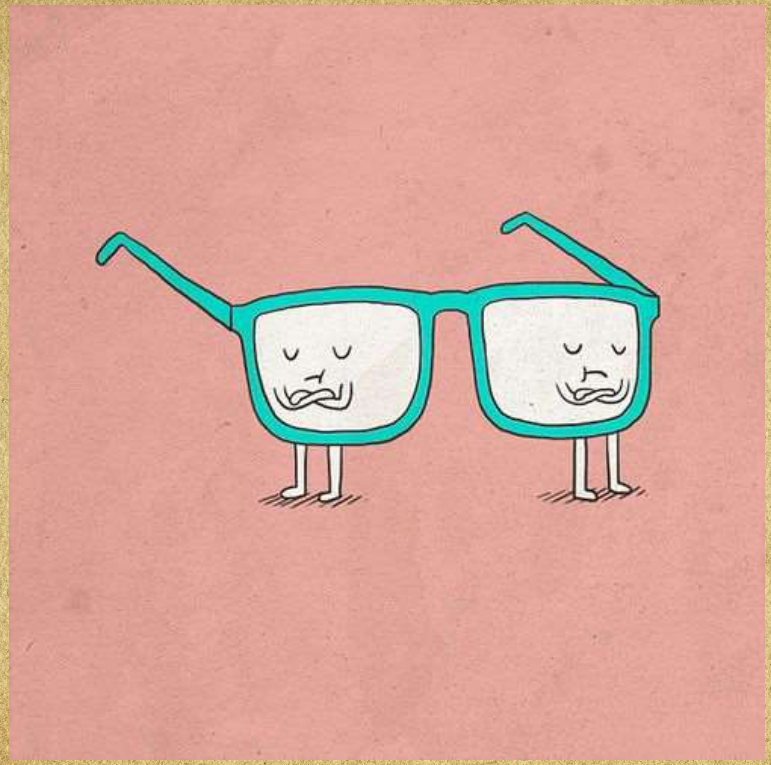
What is an Occupational Therapist's Role in Visual Screening?

- Generalists treat by providing recommendations for general adaptations (increased lighting, increased contrast, line guides, etc…).

- Specialists treat by training use of residual vision during ADLs, environmental adaptation, compensatory techniques, community reintegration, caregiver training and training w/ optical (prisms, magnifiers) and non-optical devices (assistive tech).
    - Remediation, compensation, adaptation

Vision Team Members

How do you know who to refer to?

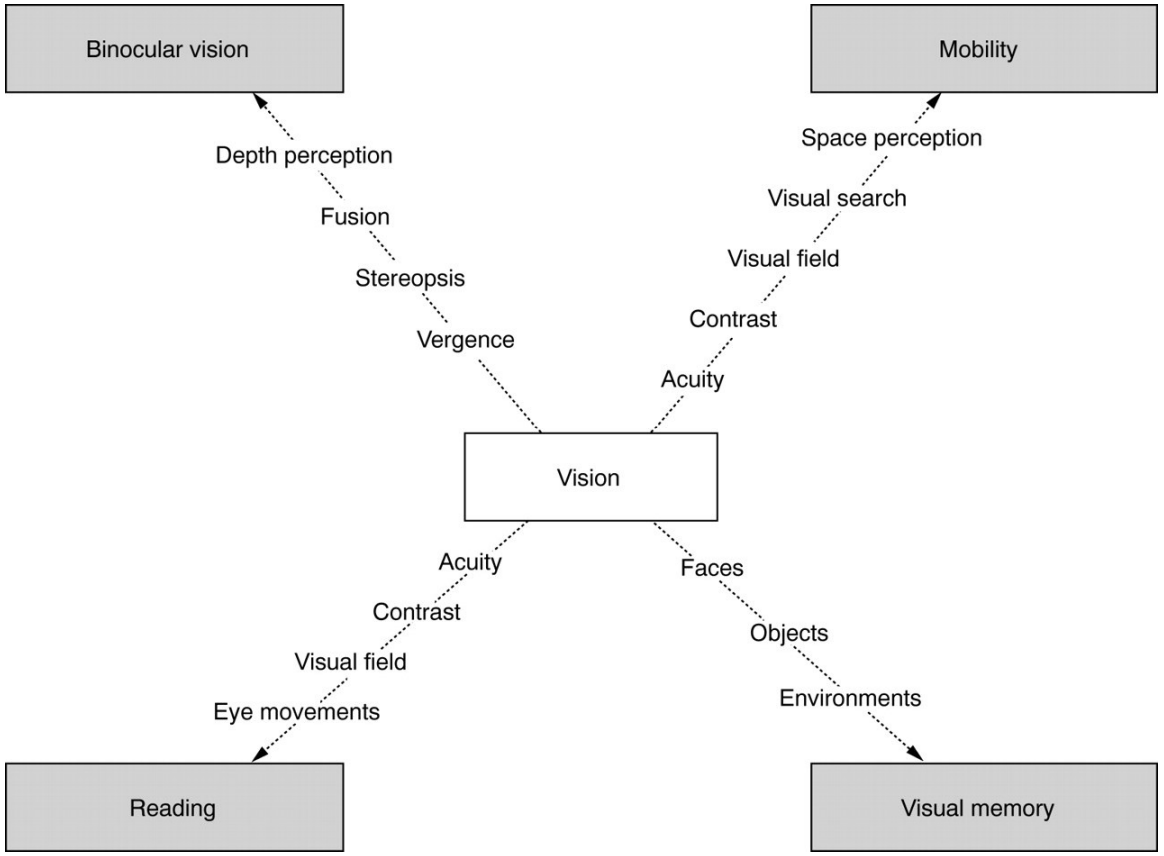


When to refer a patient to Neuro-Optometry?

Questions for Caregivers to ask during the initial Neuro-optometry visit

- How long will it take for my eye(s) to regain the vision that was lost?
- Are there any cranial nerves that were damaged? If so, what purpose does that nerve serve in being able to see?
- Will I be able to drive again?
- Is surgery an option? What would be the goal of surgery?
- Will my double vision ever go away?
- Is there any recommended eye exercises I should be doing now with my OT or at home?
- Should I get a second opinion?

Relevance of different visual abilities for four main types of activities (binocular vision, reading, mobility, visual memory) in a neurorehabilitative context.



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