Neuro-ophthalmology

Cinti Pillai, M.D.
Associate Professor of Neurology & Ophthalmology
New York University School of Medicine
What do you need for vision?
What do you need for vision?

• Many different components
  • Eyes
  • Eye muscles
  • Optic nerve
  • Brain vision pathways
  • Balance system
Neuro-ophthalmology

• vs Ophthalmology
• Conditions affecting the vision nerves, brain vision pathways, and eye movements
What do you need for vision?

https://discoveryeye.org/the-brain-and-the-eye/

Hofer Sabine, Karaus Alexander, Frahm Jens. Reconstruction and dissection of the entire human visual pathway using diffusion tensor MRI. Frontiers in Neuroanatomy, Vol 4; 2010.
Vision and Balance

The brain interprets signals relayed from nerves throughout the body.

The eye sends visual data.

The inner ear sends signals related to sound and body position.

Joints and muscles signal body position.
Bring...

- Your glasses (distance and near)
- Outside MRIs on CD with reports
- Visit notes
- Questions
- Companion
- Sunglasses and plan to get home (eye might be dilated)
Neuro-ophthalmic Examination

- Visual acuity
- Color vision
- Pupillary light reflex
- Optic nerve appearance
- Extraocular muscles (double vision)
- Stereoacuity (depth perception)
- Neurologic examination
Neuro-ophthalmic Testing
Visual Field

- Checks peripheral vision
- Important for driving

www.eyesoneyecare.com/resources
Neuro-ophthalmic Testing
Optical Coherence Tomography

- OCT
- Health of the optic nerve
Neuro-ophthalmic Management

• Symptomatic Management
  • Prisms
  • Lens blurring
  • Injections
  • Vision therapy

• Surgical management

www.kaypictures.co.uk
Hillary Clinton’s special eyeglasses to stop ‘double vision’ (nypost.com)
NEW YORK
- No driving with double vision
- VA at least 20/40 in one eye (not less than 20/70)
- Binocular horizontal visual field of least 140 degrees

Possible restrictions
- Eyeglasses, bioptic telescopic lens
- Sunrise to sunset
- Not during rush hour
- Geographical restriction
- Prohibit freeway driving
- Require special mechanical devices, or extra side mirror
- Require support to ensure safe driving position
Neuro-ophthalmology

- Follow up is a team approach
- Ophthalmology (Strabismus, Pediatric, Orbit)
- Optometry
Thanks for listening!