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Full Review of Neuro in a Comprehensive Clinic: Pupils, Color Vision, Confrontational Fields, and Indications for Each Test

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**Disclosures**

- None

  
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**Overview**

- Neuro-Ophthalmology Basics
- Pupil Exam
- Color Vision
- Confrontational Visual Fields

  
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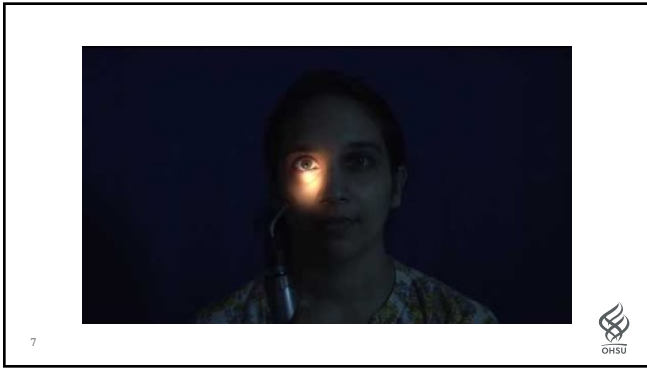
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### Relative Afferent Pupillary Defect (RAPD)

Normal	Right relative afferent pupillary defect
<p>Constricts</p>	<p>Dilates</p>

Pearl: Count the number of seconds you shine the light on each eye

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### Anisocoria

Difference of >1 mm between pupils

Pearl: Always test in light and dark if you see this  
 Pearl: Do not dilate before informing doctor

EyeGuru

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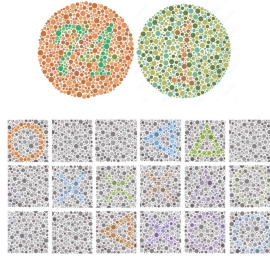
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### Color Vision: Why?

- Impaired color vision is a sensitive sign of optic nerve disease and should be done for:
  - Decreased best-corrected visual acuity/vision loss
  - Concern for intracranial disease (eg, worsening headaches and vision changes)
  - Concern for orbital disease (eg, eye swelling, pain or difficulty with eye movement, bulging eye)
- Two methods:
  - Formal color plates (Ishihara, Hardy-Rand-Rittler)
  - Red desaturation ("poor man's color vision test")
- Ask about color blindness
- Always test before dilation



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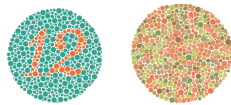
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### Color Vision: How?

#### Color Plates

- Ishihara:
- Control plate(s): 20/400
  - Tracing plates
  - 10, 14, or 24 plates
  - Score 1 or ½ points



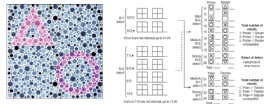
#### Red desaturation



\$ or %



- Hardy-Rand-Rittler (HRR):
- More sensitive for subtle changes
  - Control plates 1-4
  - Sophisticated scoring



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### Confrontational Visual Fields: Why?

- Quick and easy
- Variety of conditions that affect peripheral vision
  - Glaucoma
  - Retinal detachment
  - Stroke
  - Vascular occlusion
  - Certain brain tumors



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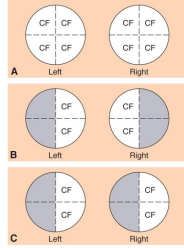
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### Confrontational Visual Fields: How?

- Step 1: Remove hats/glasses/anything that may interfere with peripheral vision
- Step 2: Sit 3-4 feet away and directly in front and at eye level
- Step 3: Cover left eye, patient to fix gaze directly on your right eye
- Step 4: Close your own eye on the same side and raise your hand in one quadrant and fingers: 1, 2 or 5. Ask how many are seen
- Step 5: Repeat for other eye



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Pearl: Sit 3-4 feet away at eye level  
 Pearl: Have patient look directly to your open eye  
 Pearl: Only use 1, 2, or 5 fingers



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### Summary

- Afferent tests visual pathway input; efferent tests output
- Pupil shape, reaction, and rAPD are key characteristics to record and should be done prior to dilation
- Ishihara testing requires at least 20/400 vision; can attempt red desaturation if vision is poorer than this
- Confrontational visual fields should be tested in front of the patient and closing the same eye as the patient so you can compare what you can see to what the patient sees



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Thank You

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