

# Eyes

- Inspection
- Visual Acuity
- Visual Fields
- Pupillary Response
- Fundoscopic Exam

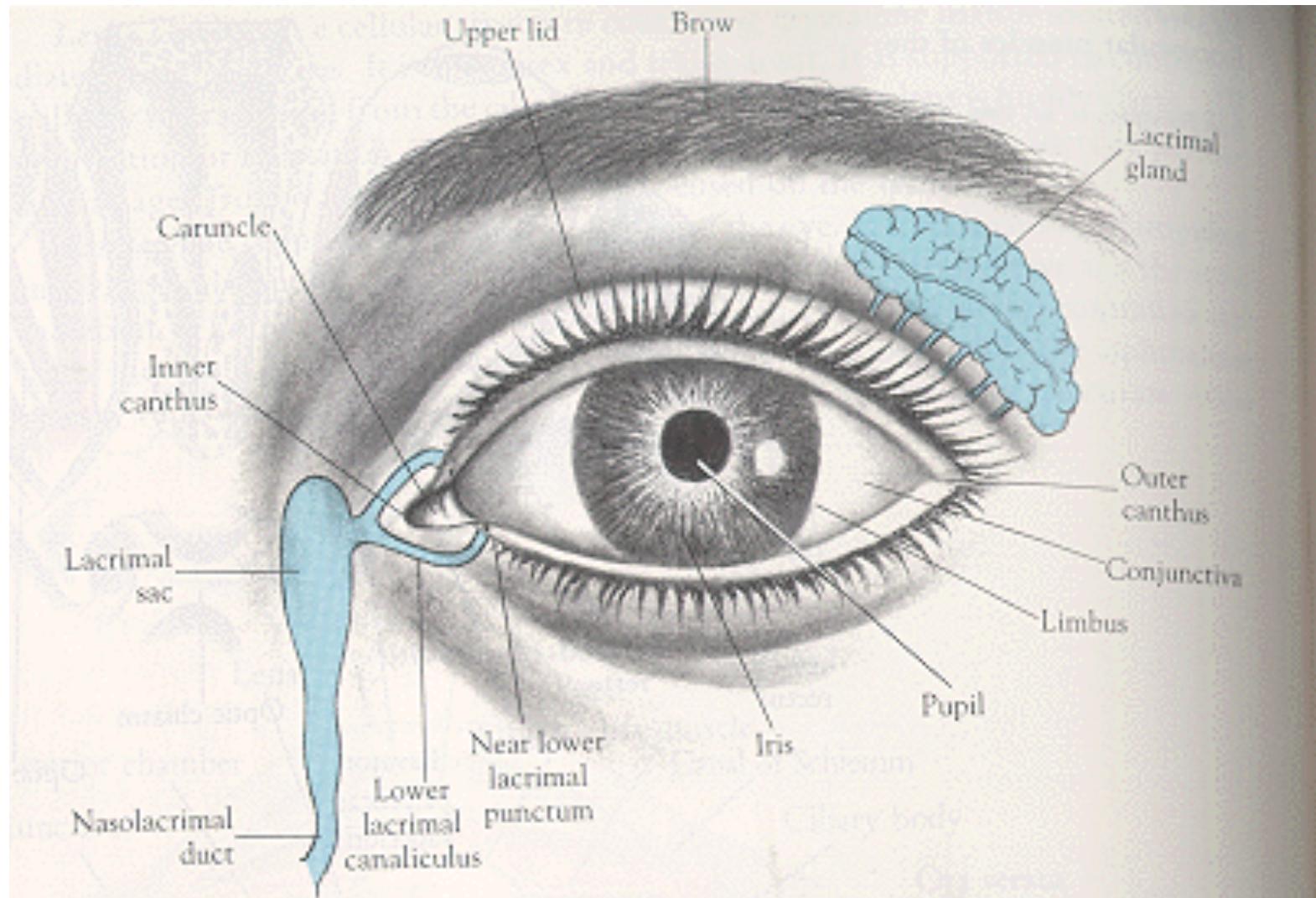
# Eye Examination

## Inspection



11. Inspects external ocular (eye) structures (lids, conjunctiva, iris, cornea, pupils)
12. Gently moves eyelids up and down to obtain a better view

## Important landmarks of the external eye



# Inspection



## 11. Structures to Inspect

- Position and alignment of eyes
- Eyebrows
- Eyelids
- Lacrimal Apparatus

# Eyes

## Visual Acuity



13. Checks acuity with Snellen and from proper distance
14. Checks acuity both eyes separately

## Snelling Eye Chart



Hand held eye chart

## 13, 14. Visual Acuity

- ◆ Hold card approx 14" from pt's nose
- ◆ Ask pt to cover one eye
- ◆ Read smallest line
- ◆ Cover other eye and repeat



# Eyes

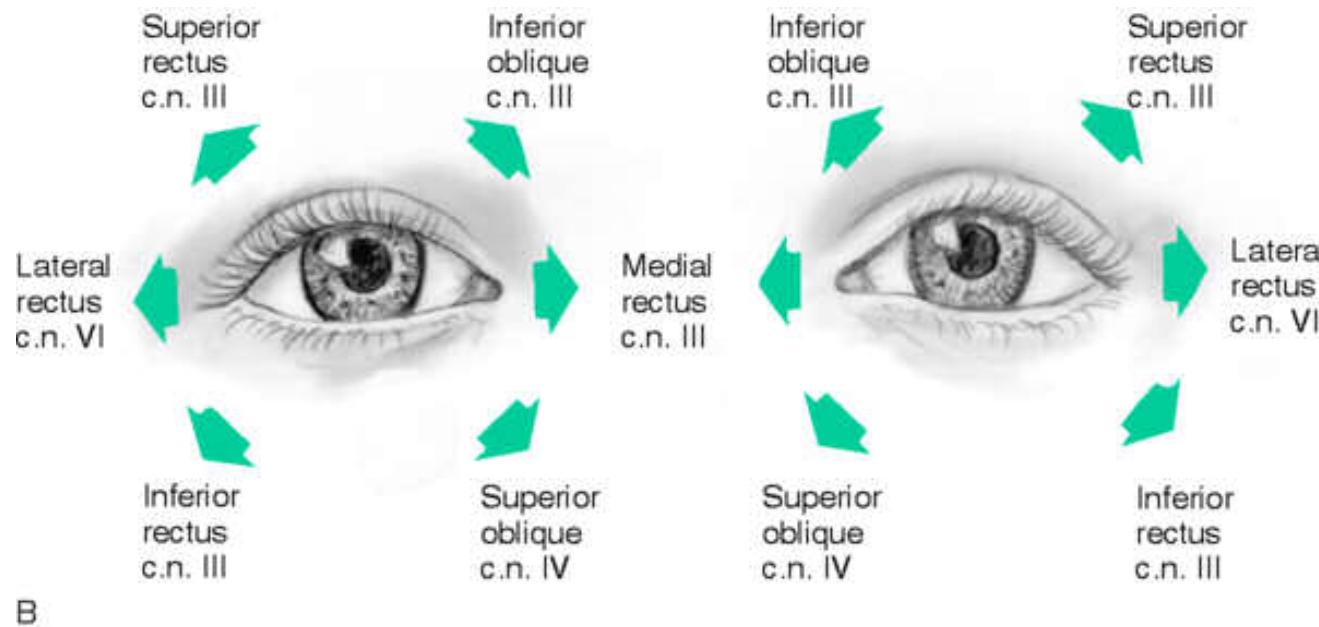
## Extraocular Movements



### **Extraocular Movements**

15. Evaluates extraocular movement (big H)
16. Checks convergence and accommodation (follows finger from far to near)

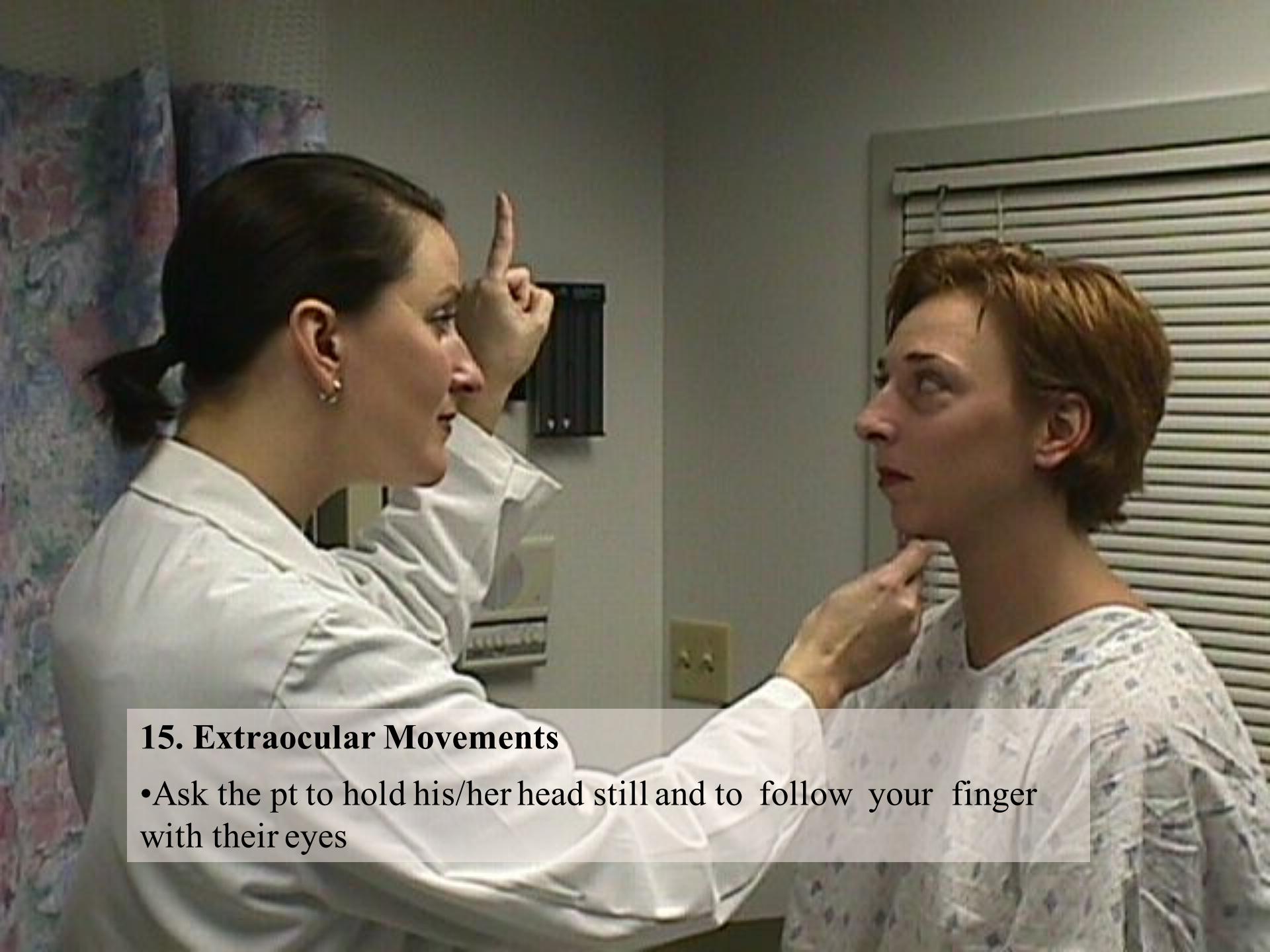
# Extraocular Muscles and Direction of Movement



The extraocular movements of each eye are controlled by the 4 rectus and 2 oblique muscles.

The extraocular movements may be tested by having the patient move the eye in the direction controlled by each muscle.

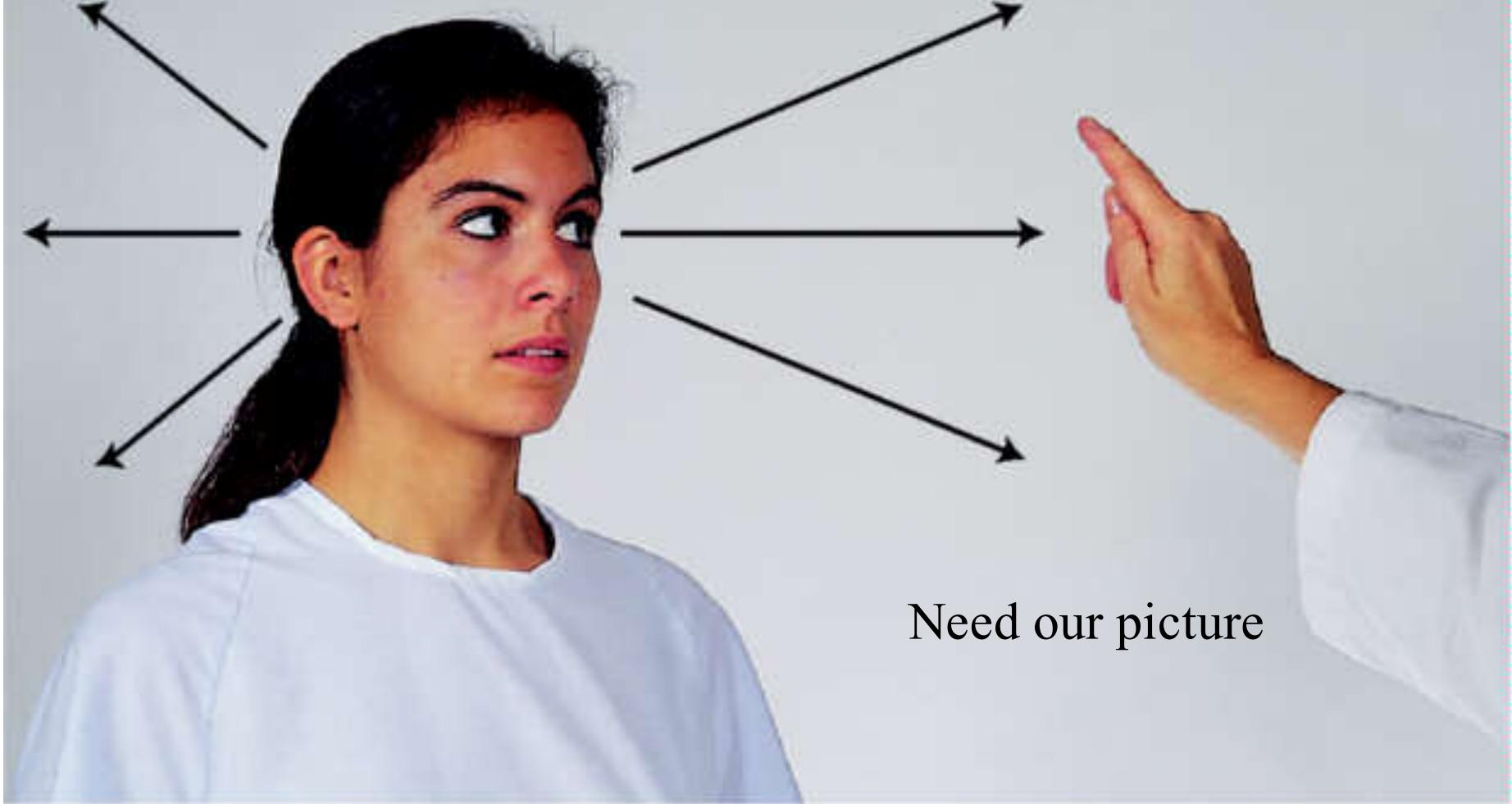
This may be accomplished by having the patient move their eyes in the six cardinal directions depicted on this diagram.



## 15. Extraocular Movements

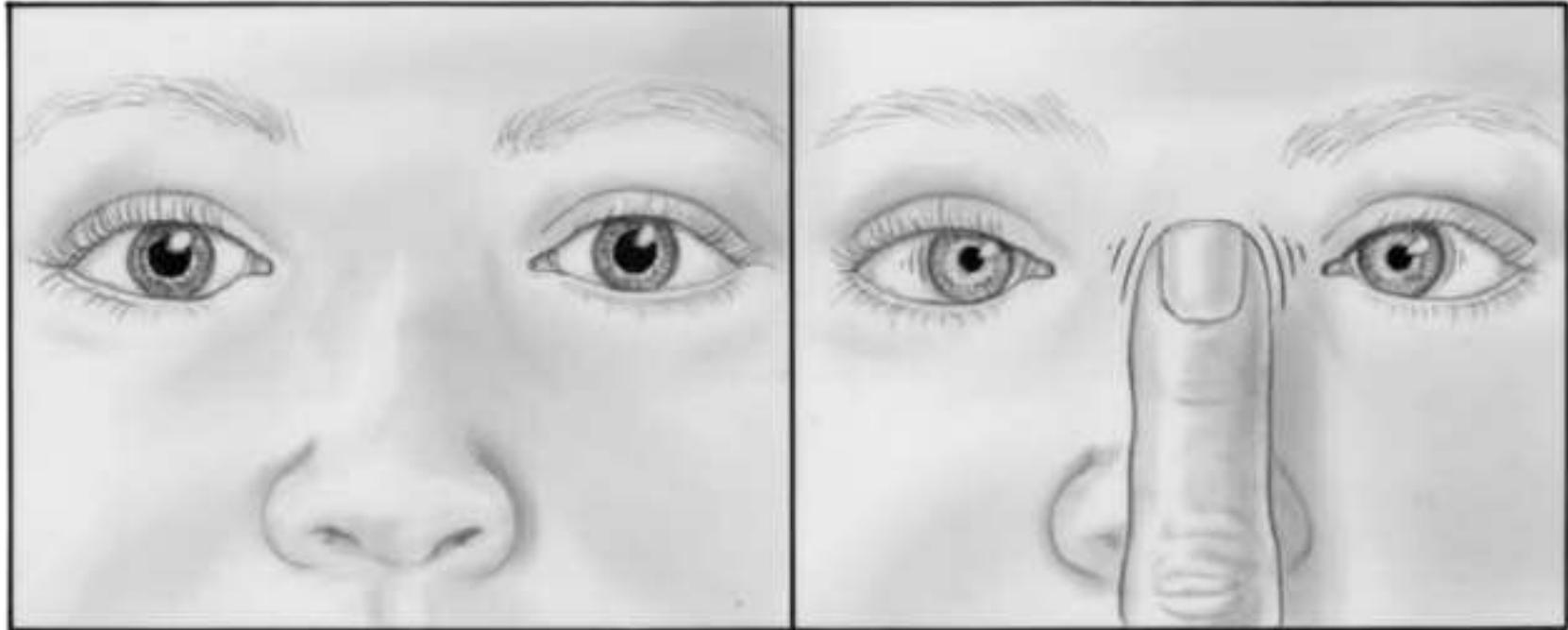
- Ask the pt to hold his/her head still and to follow your finger with their eyes

# Six Cardinal Positions of Gaze



Need our picture

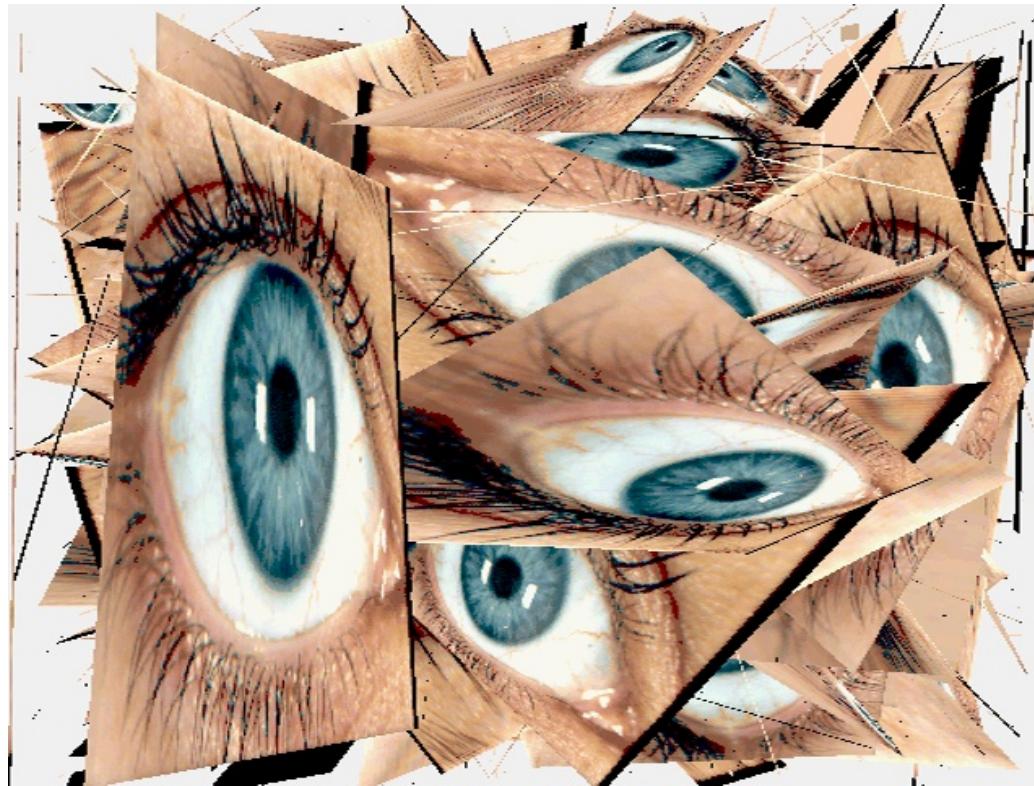
# Convergence and Accommodation



Needs illustration

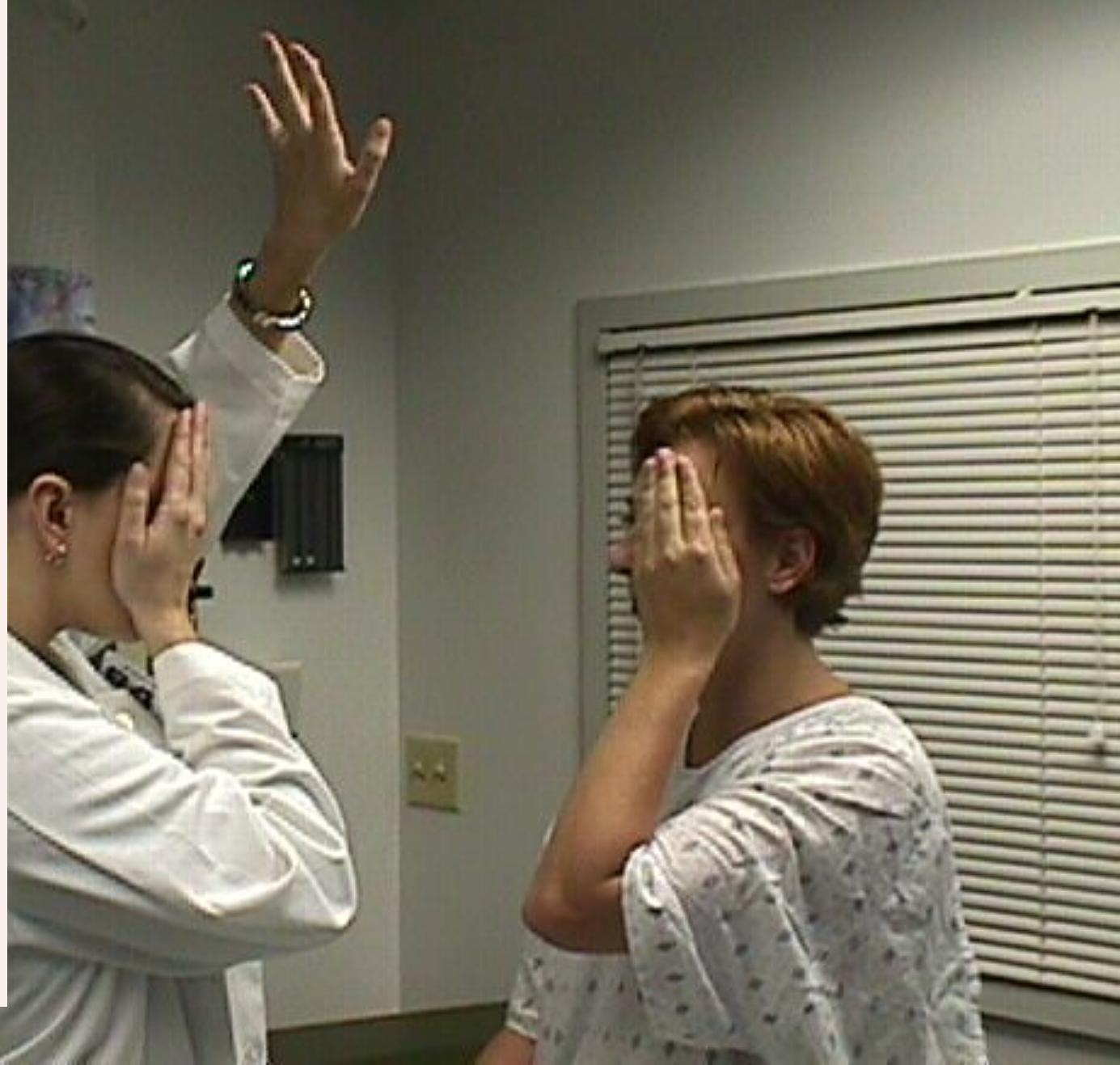
# Eyes

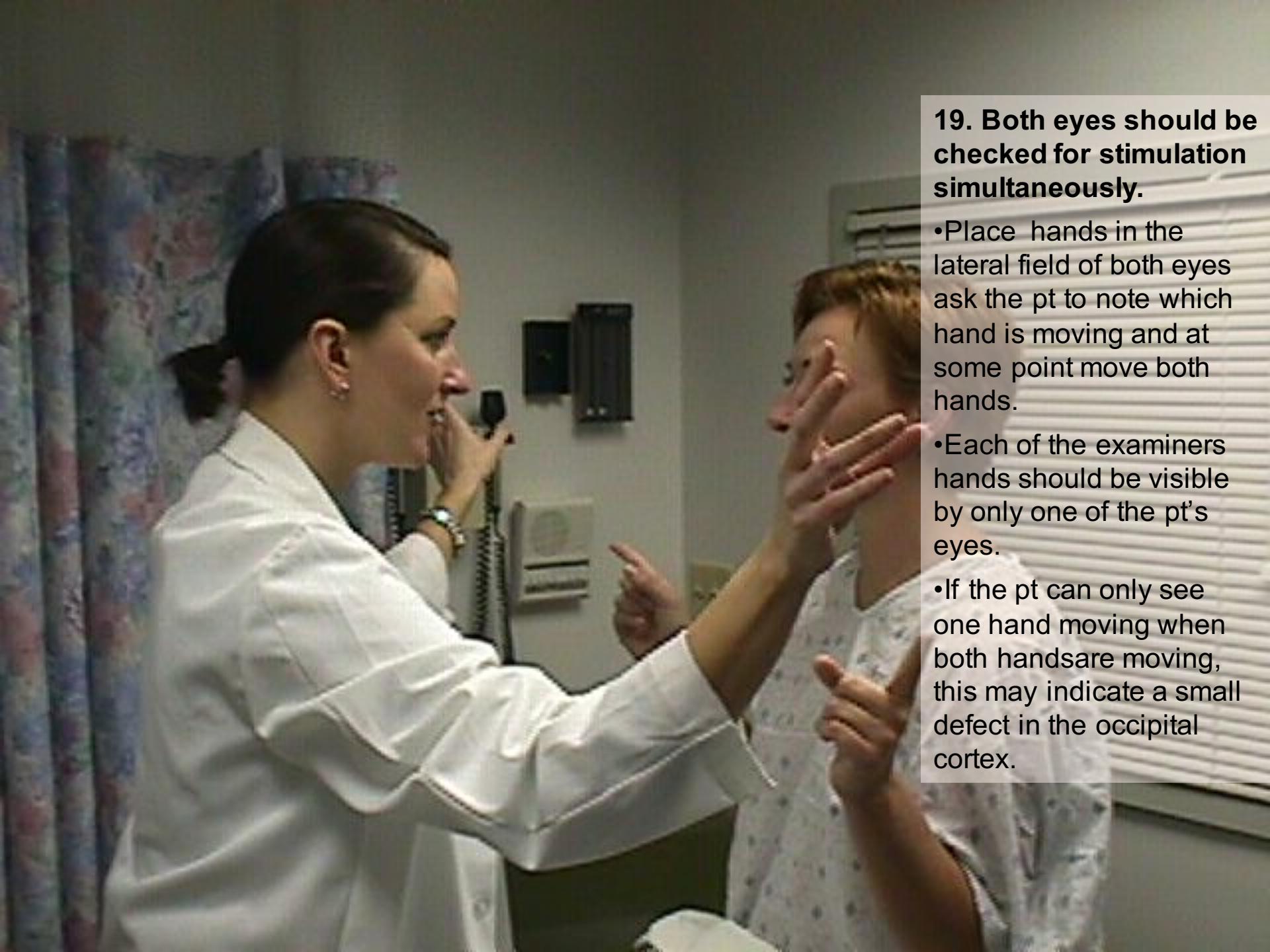
## Visual Fields



## 17 –20: Visual Fields

- Ask the pt to cover one eye
- Cover your opposite eye
- Ask the pt to look straight ahead
- Place one hand in the plane between the patient and the examiner out of your vision
- Move the hand and ask the patient when he/she can see your hand

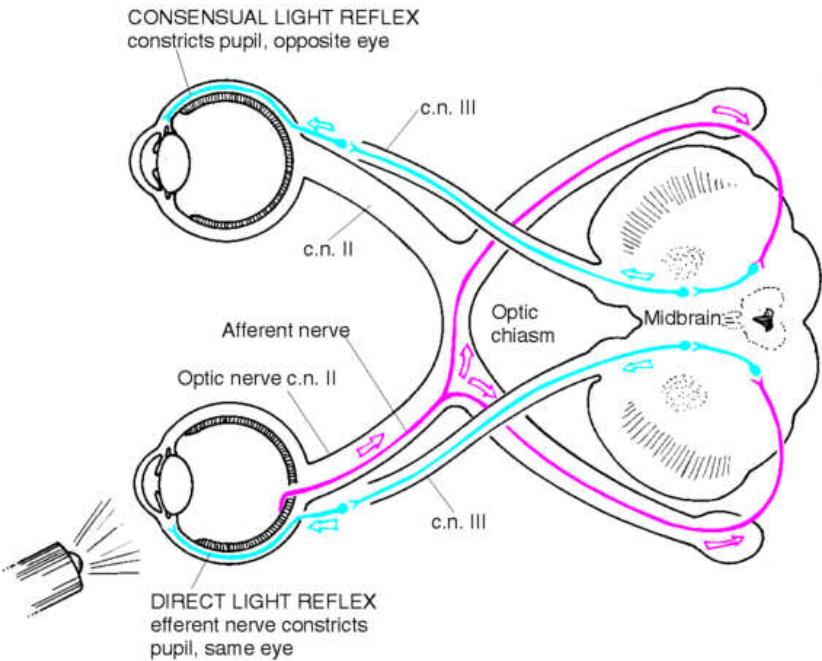


A photograph showing a medical professional in a white coat and stethoscope around their neck, performing a neurological examination on a patient. The professional is holding a small object near the patient's right eye while simultaneously moving both of their hands. The patient is wearing a patterned hospital gown.

**19. Both eyes should be checked for stimulation simultaneously.**

- Place hands in the lateral field of both eyes ask the pt to note which hand is moving and at some point move both hands.
- Each of the examiners hands should be visible by only one of the pt's eyes.
- If the pt can only see one hand moving when both hands are moving, this may indicate a small defect in the occipital cortex.

# Eyes



21. Pupillary response to light  
– direct (same eye the light is directed into)

22. Pupillary response – indirect (eye light is not directed into) (watch examiner's eyes closely, can watch eye dilate)

23. Swinging flashlight test  
(start in one eye, quickly move to other eye, wait then fast back to original eye and wait)

## Pupillary Response



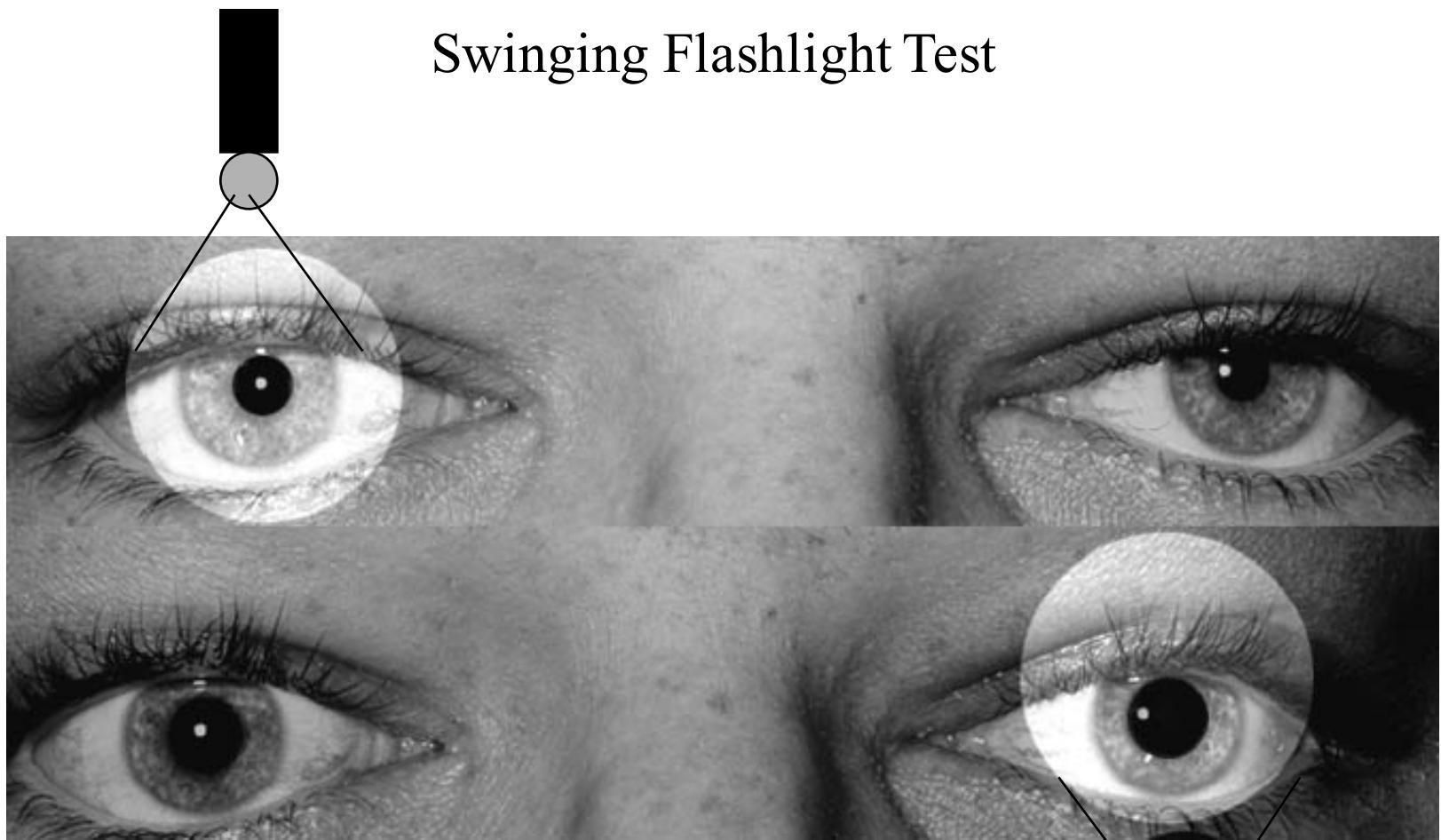
## 21, 22. Pupillary Light Response

Observe reflection of pen light in both pupils. Is it symmetrical?

Test the pupillary response to light

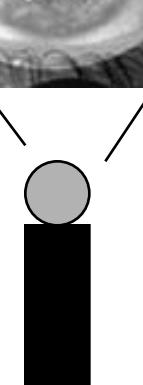
- Direct response – pupil constricts in examined eye
- Consensual (Indirect) response – pupil constricts in the opposite eye

## Swinging Flashlight Test

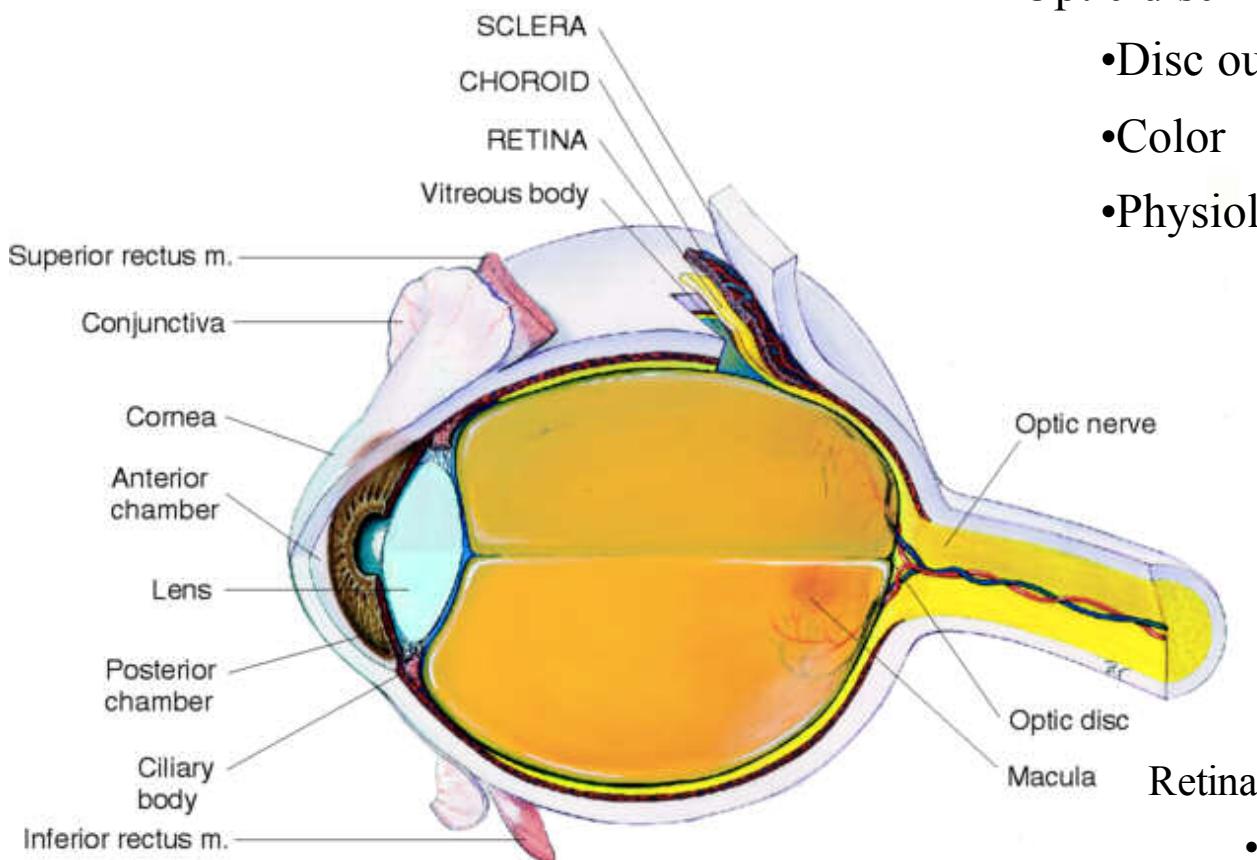


Detects optic nerve disease vs ocular disease

- A bright light is placed in front of one eye and moved quickly to the other eye, then one or two seconds later moved quickly back to the first eye.
- The pupils should remain constricted when the light is taken from one eye quickly to the other

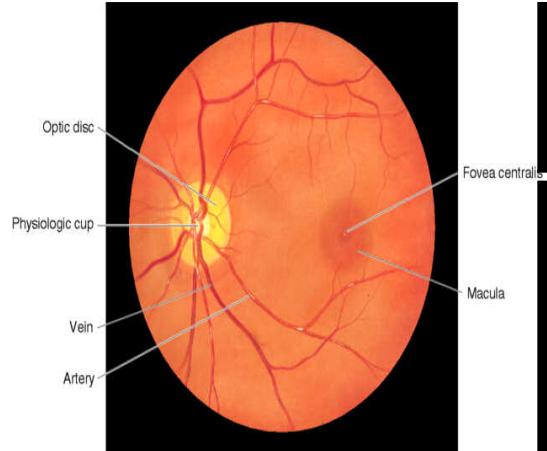


# Fundoscopic Exam of the EYE



- Optic disc
- Disc outline
- Color
- Physiologic cup
- Vessels
- 4 quadrants
- Fovea and macula
- Anterior structures

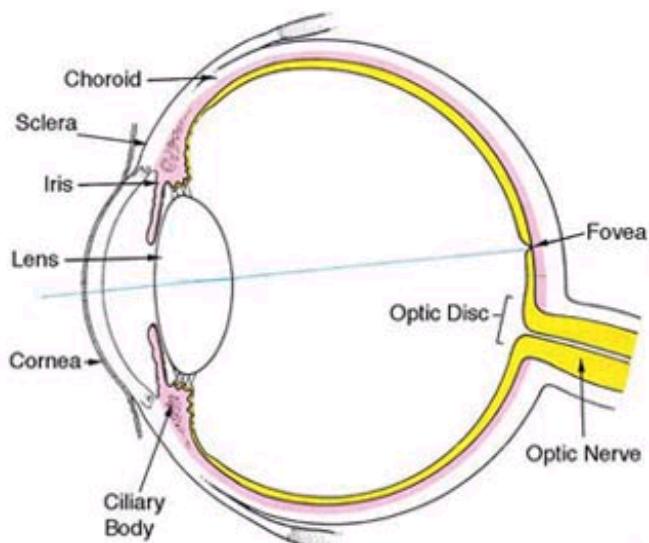
# Eye



## Fundoscopic Exam

24. Lights are dimmed
25. Holds and positions ophthalmoscope properly and uses index finger to switch lens
26. Examiner uses R hand R eye to look in R eye
27. Inspects anterior structure with ophthalmoscope - R eye(Start +15-40 to see anterior structures and move toward 0)
28. Inspects optic nerve - R eye (comes in at 15° with lens at 0 or moving from the positive toward 0)
29. Traces vessels to all four quadrants - R eye
30. Observes macula - R eye (Credit to be given if #28 and look laterally)
31. Examiner uses L hand L eye to look in L eye
32. Inspects anterior structure with ophthalmoscope - L eye (Start at +15-40 to see anterior structures and move toward 0)
33. Inspects optic nerve - L eye (Comes in at 15° with lens at 0 or moving from the positive towards 0)
34. Traces vessels to all four quadrants - L eye
35. Observes macula - L eye (credit to be given if #33 and look laterally)

# Internal Anatomy of the Eye



During the **Fundoscopic Exam** the ophthalmoscope may be used to visualize the following structures of the eye:

- Optic disc
  - Disc outline
  - Color
  - Physiologic cup
- Retina
  - Vessels
  - 4 quadrants
  - Fovea and macula
- Anterior structures

# Ophthalmoscope



Lenses (magnification power of lens = diopters)

- Controlled by diopter dial
  - Black or green numbers - positive numbers - counterclockwise – plus lenses
  - Red numbers – negative numbers – clockwise- minus lenses
- Light source
  - Brightness controlled by rheostat
- Various apertures
  - Large – usually use this one
  - Small - small pupils
  - Red free filter - green beam, optic disc pallor and minute vessels changes
  - Slit - Anterior eye, elevation of lesions
  - Grid - size of fundal lesions



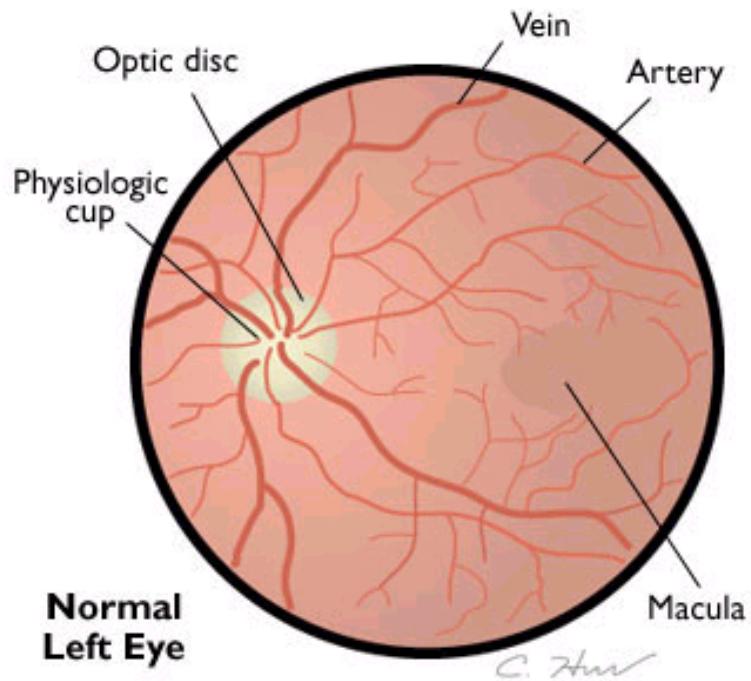
## Holding the Ophthalmoscope

- Use the index finger to change lenses (diopters)

## 24-35. Fundoscopic Examination

- Darken the room
- Place the ophthalmoscope to 0 diopters and the large round beam
- Keep index finger on lens disc
- Use R hand for pt's R eye and L hand for pt's L eye
- Ask pt to fix gaze on a spot on the wall
- From about 15" away and about 15° lateral look into pt's eye
- Observe the red reflex and then move in closer
- You may rest your opposite hand on the pt's forehead above the eye to help guide
- Move the ophthalmoscope very close to the pt's eye
- If you initially see blood vessels, you can follow the blood vessels toward the disc.
  - They flow like rivers toward the disc.
- Diopters may need to be adjusted to obtain a good focus

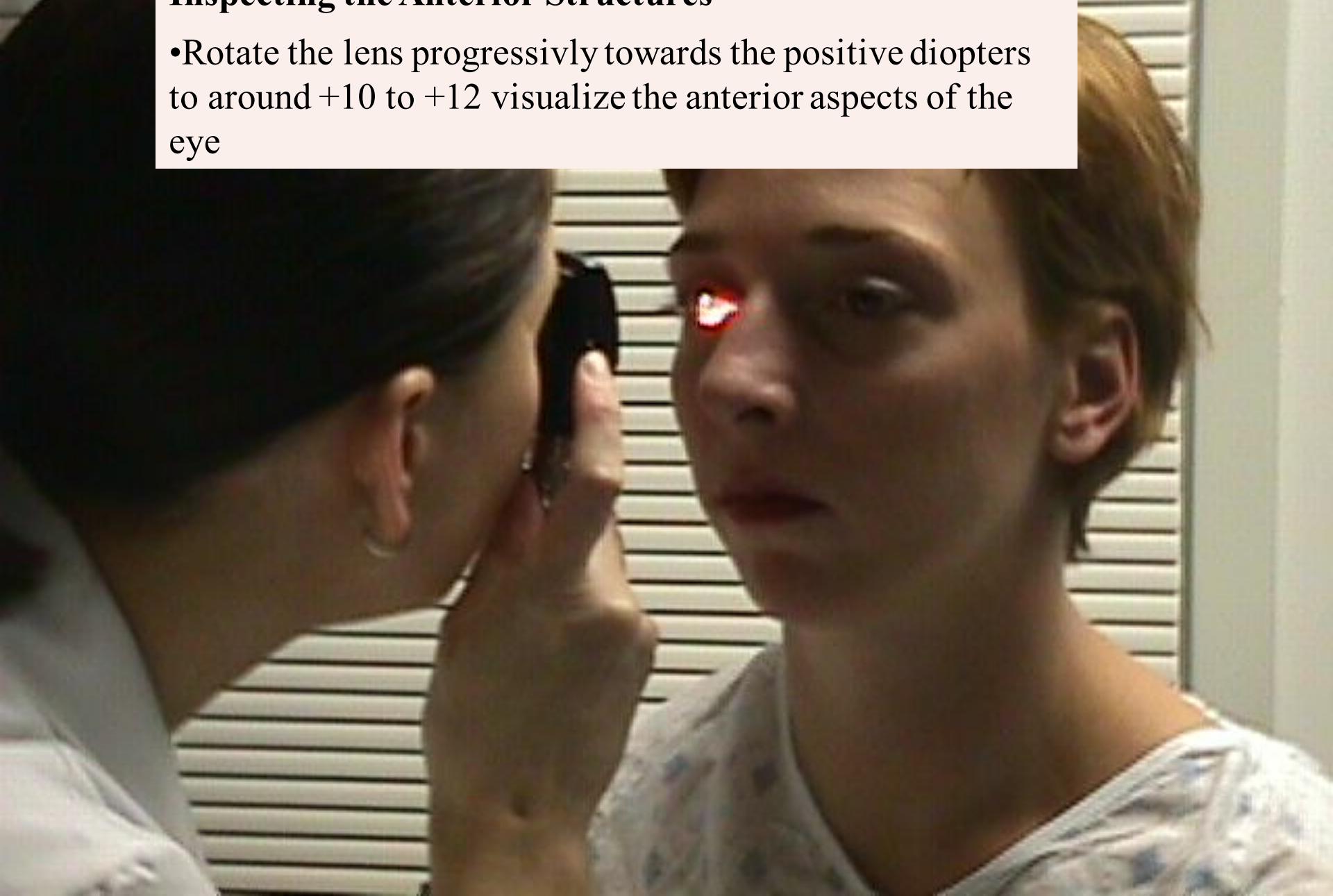




- Once you see the disc, you should note its color and note what percent of the physiologic cup involves the disc.
- The cup-to-disc ratio should be less than 0.6.
- You should note the size of the arterioles as compared to the veins. They should be 2/3 to 4/5 the size of veins.
- Next look in all 4 quadrants of the retina
- Finally, look at the fovea and macula. This may be accomplished by asking the pt to look at the light

## **Inspecting the Anterior Structures**

- Rotate the lens progressively towards the positive diopters to around +10 to +12 visualize the anterior aspects of the eye





## Panoptic Ophthalmoscope

- Focus the scope on an object about 10 to 15 feet away
- Put the aperture on the “home position” (green line)
- Start about 6 inches away at a  $15^{\circ}$  angle
- Visualize the fundus and move in until the cup is compressed against the pt’s face