

# Physical examination

Supervised by :  
Dr. Deaa albtoosh

Presented by:  
Haneen Azzeh  
Muath Mahadin



# Physical examination

General examination

Visual acuity

Pupils

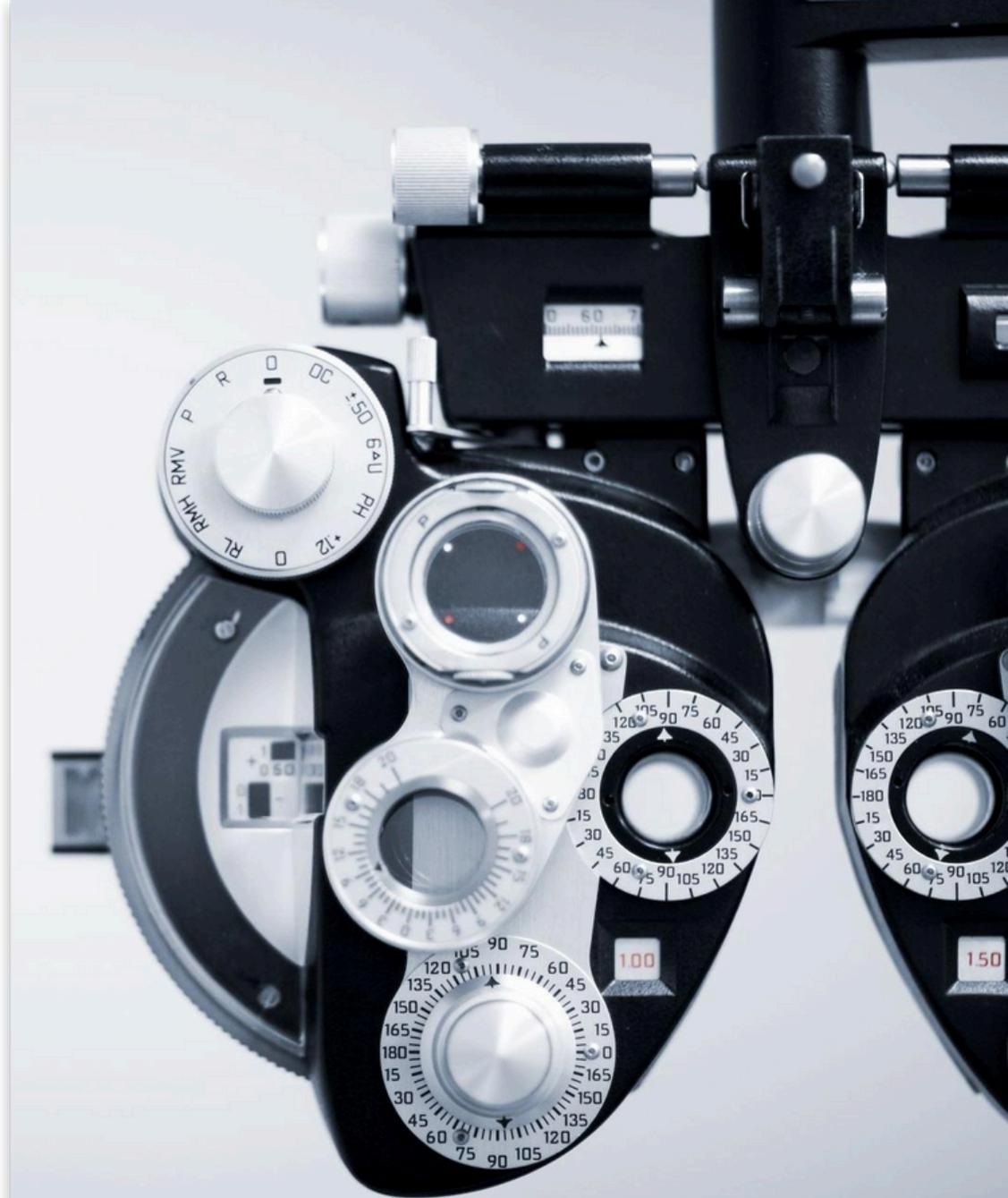
Extra-ocular motility

Visual field

Funduscopy or ophthalmoscopy

Slit-lamp exam

IOP



# General examination

- General appearance
- Head position
- Facial asymmetry and dysmorphic features
- Eyelid position and periocular skin
- Position and symmetry of gaze

# General appearance

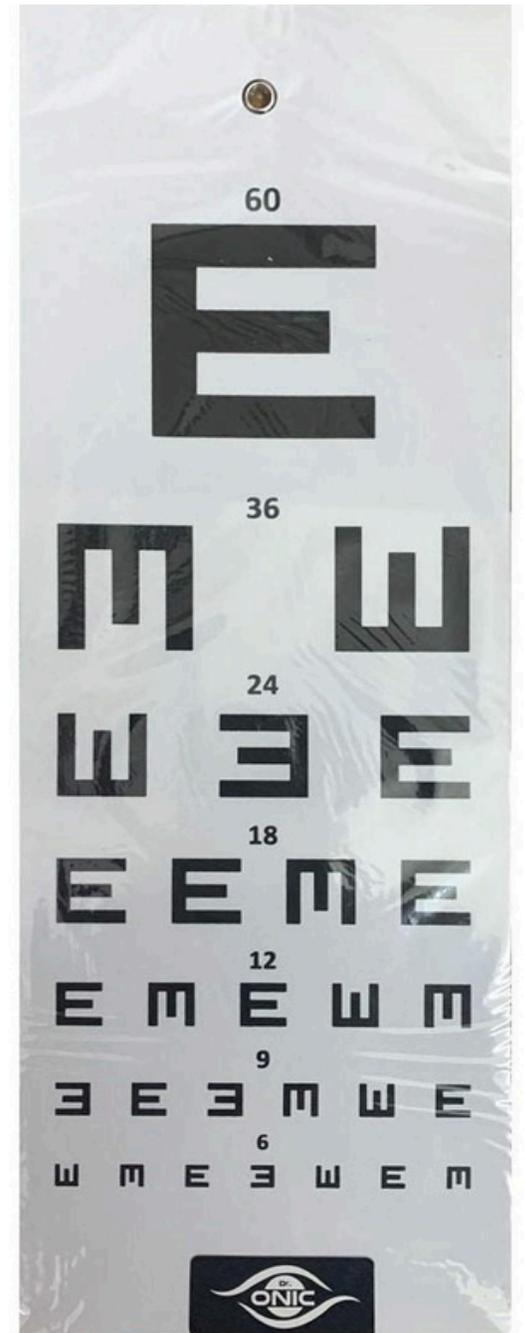
Examples:



# Visual acuity

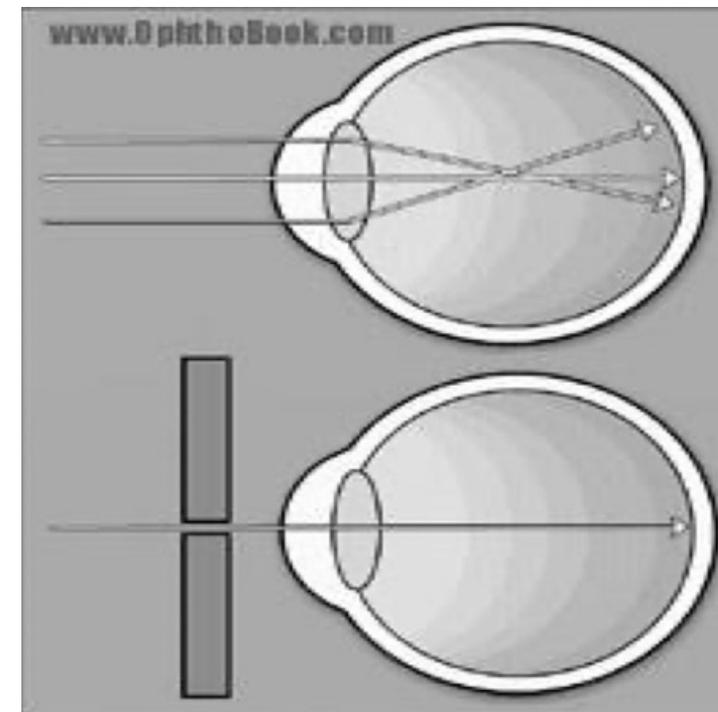
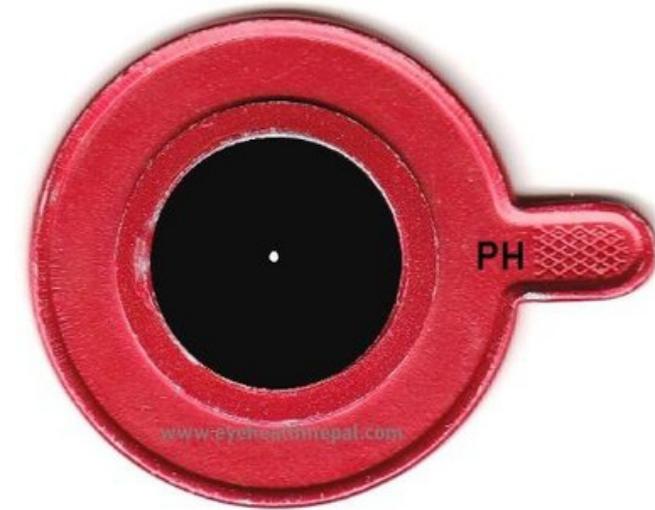
- Using Snellen chart, 6m away from the patient.
- Test each eye separately.
- If the patient cannot see the largest font, reduce the chart distance to 3m, then to 1m if necessary. If they still cannot see the largest font, document whether they can count fingers, see hand movement or just perceive the difference between light and dark.

Snellen chart results are expressed as a fraction, such as 20/20 or 6/6, where the numerator is your distance from the chart (usually 20 feet or 6 meters) and the denominator is the distance at which a person with normal vision could read the same



# Visual acuity cont.

- If the patient cannot read down to the last line, place a pinhole directly in front of the eye. If the visual acuity does not improve, this indicates the presence of eye disease not related to the refractive apparatus alone, such as retinal or optic nerve pathology.
- Assess near vision with a similar test using text of reducing font size held at comfortable reading distance.



# Pupils

- They should be round, regular and reactive.

Look and detect pupil:

1. Size
2. shape
3. position
4. color
5. symmetry

**Normally :the difference between pupils size <1mm**

**Anisocoria** : when the difference more than 1 mm

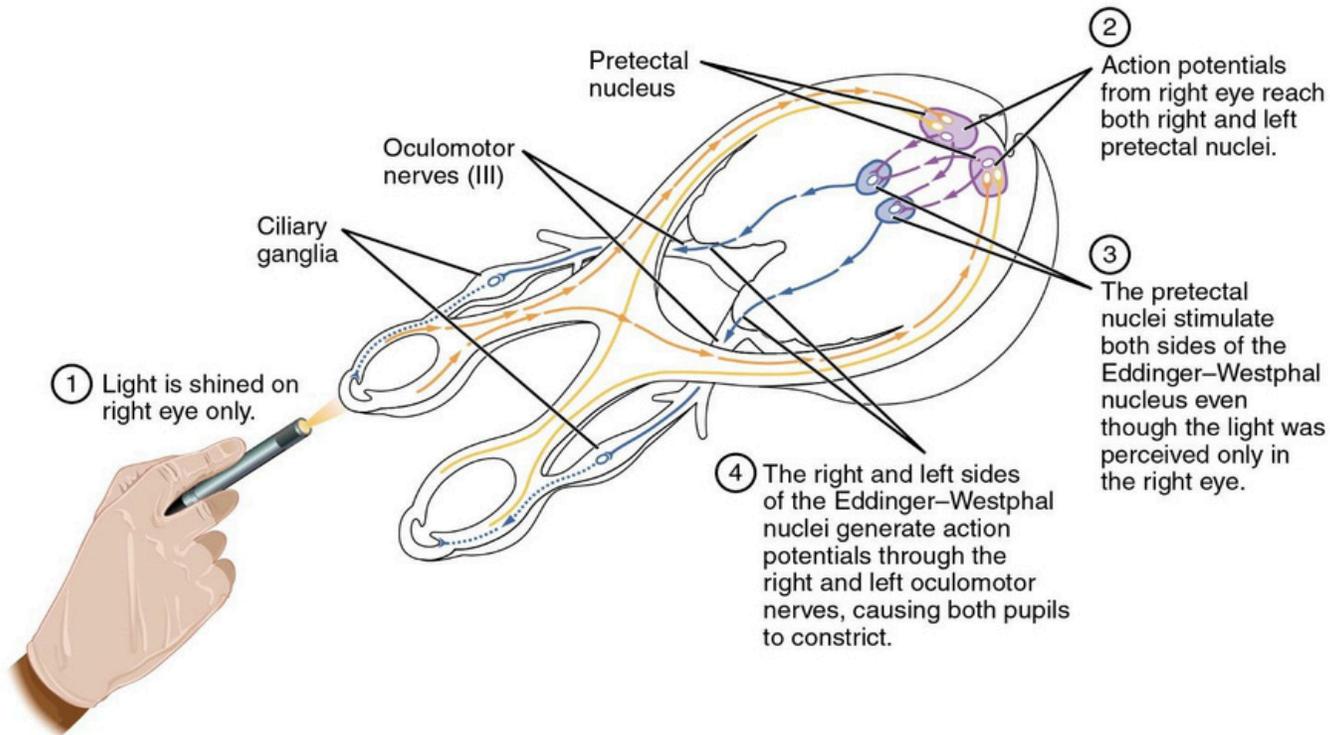
**Anisocoria** : when the difference more than 1 mm

The eyes should be assessed to determine which is the abnormal pupil, by increasing and decreasing the illumination and looking for change in the anisocoria. If the degree of anisocoria is greater in brighter lighting, then it is the larger pupil that is abnormal. If it is more pronounced in dim lighting, the smaller pupil is the abnormal one.

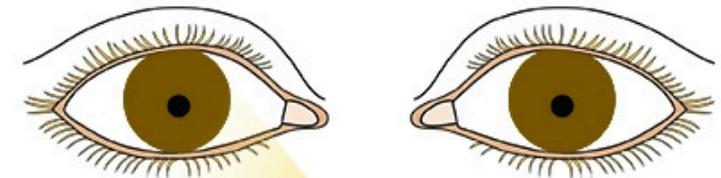
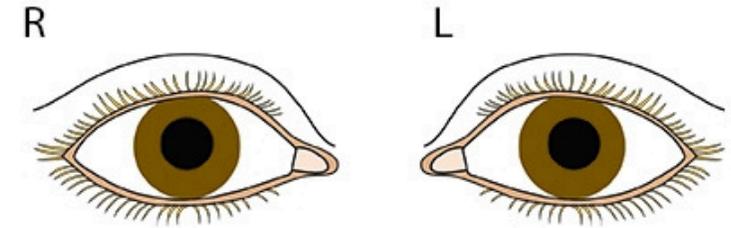
### Horrner's syndrome

- Meiosis : small pupil on the affected side Which is more prominent in dark due to dilatation of the opposite pupil
- Mild ptosis
- Anhydrosis ( decreases sweating ) which depends on the level of the lesion .

# • Direct and consensual light reflex.



Normal

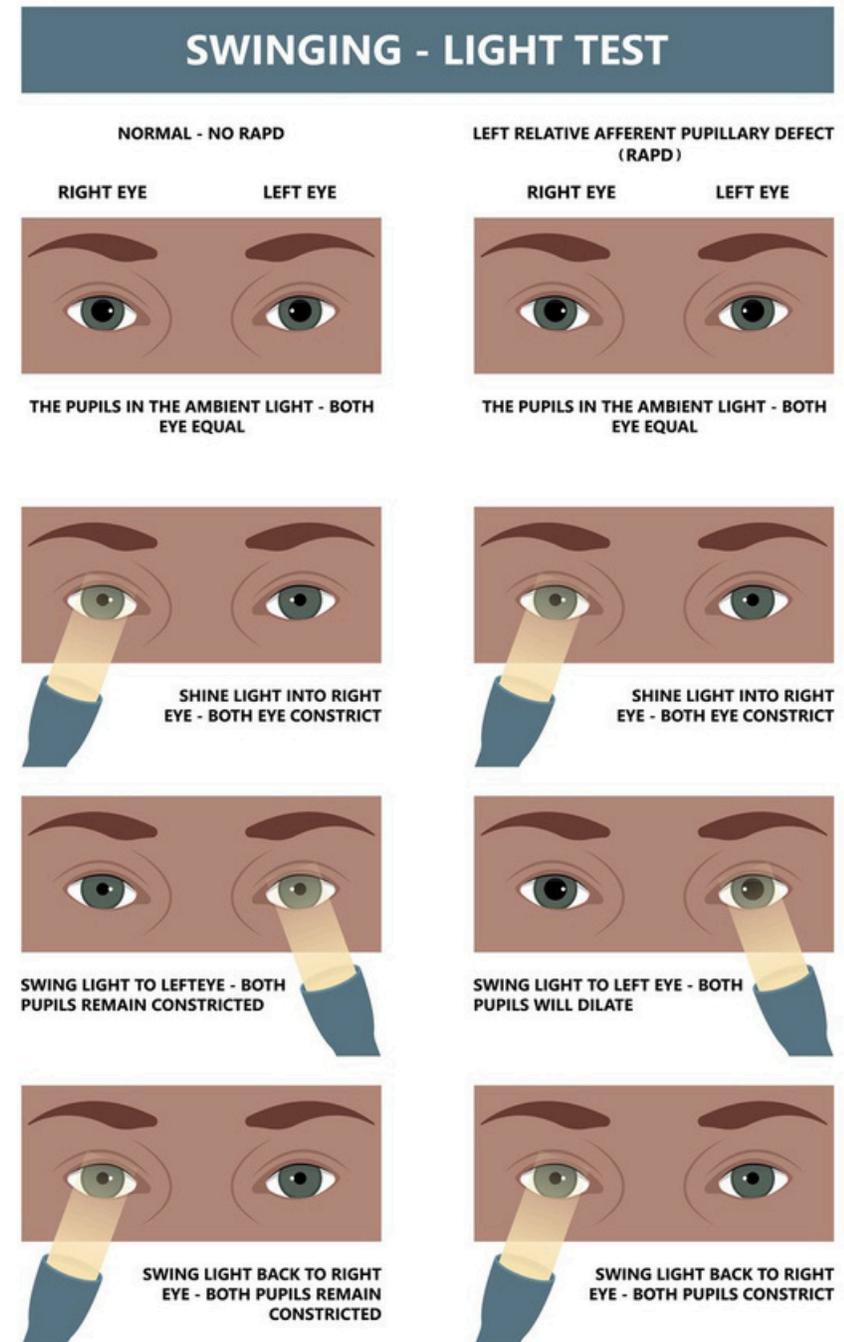


Constricts

**-Relative afferent pupillary defect (RAPD):** Light in the affected eye causes weaker constriction compared to light shone in the normal eye. It is due to disease of the retina or optic nerve that reduces the response to a light stimulus.

Detected by moving the light briskly from one eye to the other but place it on each eye for a minimum of 3 seconds. In normal patients, this results in symmetrical constriction.

**In RAPD**, light in the affected eye causes weaker constriction compared to light shone in the normal eye.



# Extraocular motility

Eye gaze and  
eye movements.

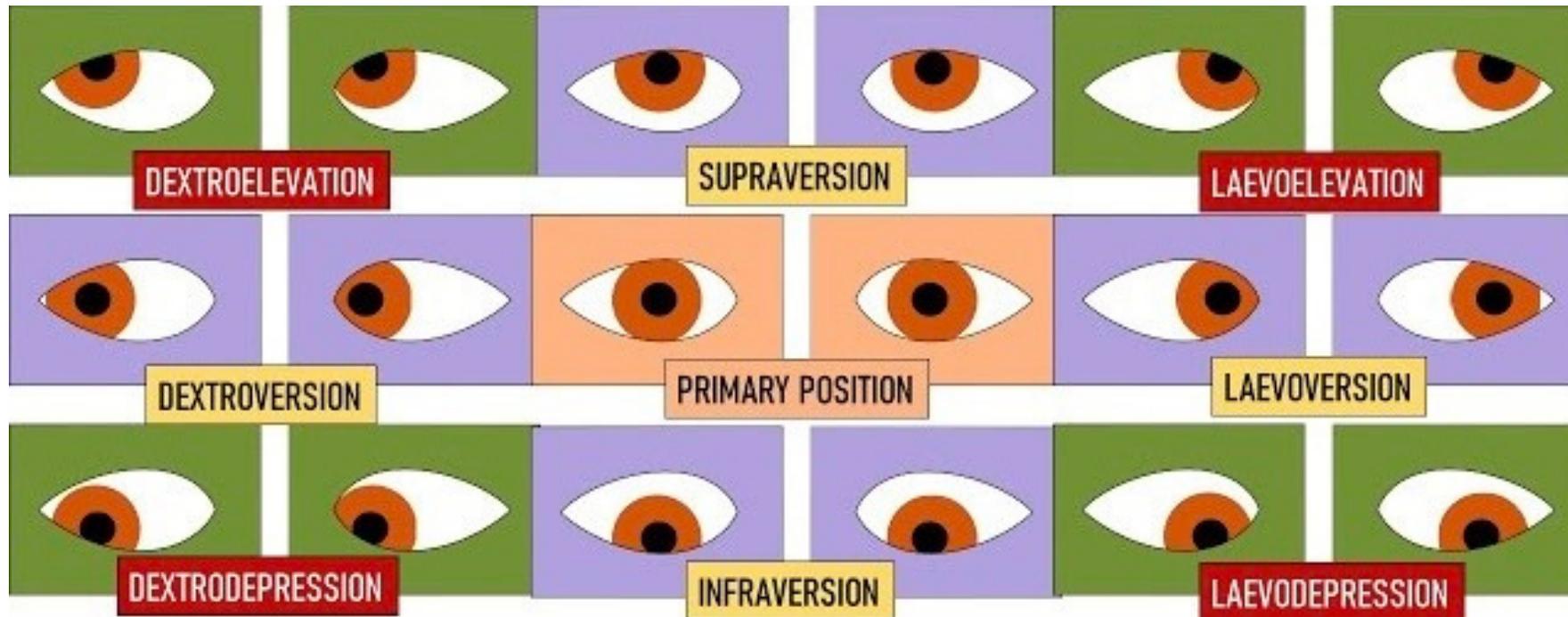
Detection of  
squint.

Ocular  
movements.

Nystagmus.

# Extraocular motility

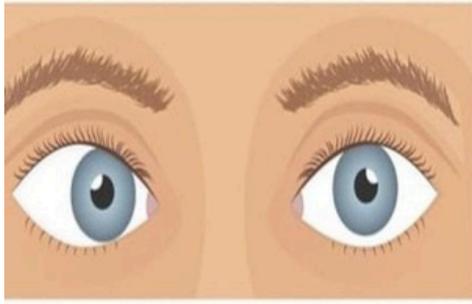
The actions of the eye muscles are most easily assessed by utilizing the H motility pattern



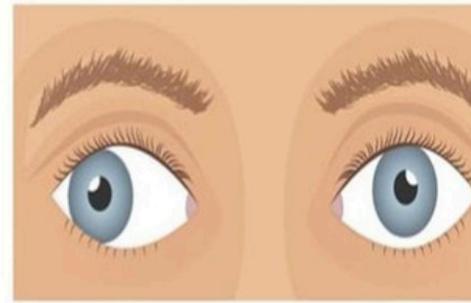
(Normal eye gaze)

# Ocular alignment and eye movement

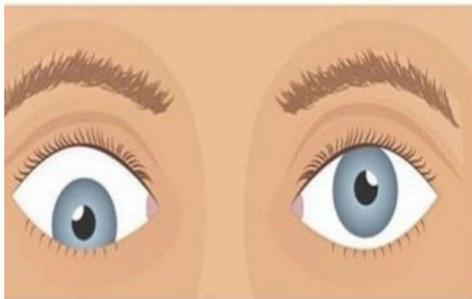
Esotropia



Exotropia



Hypotropia



Hypertropia



# Detection of squint

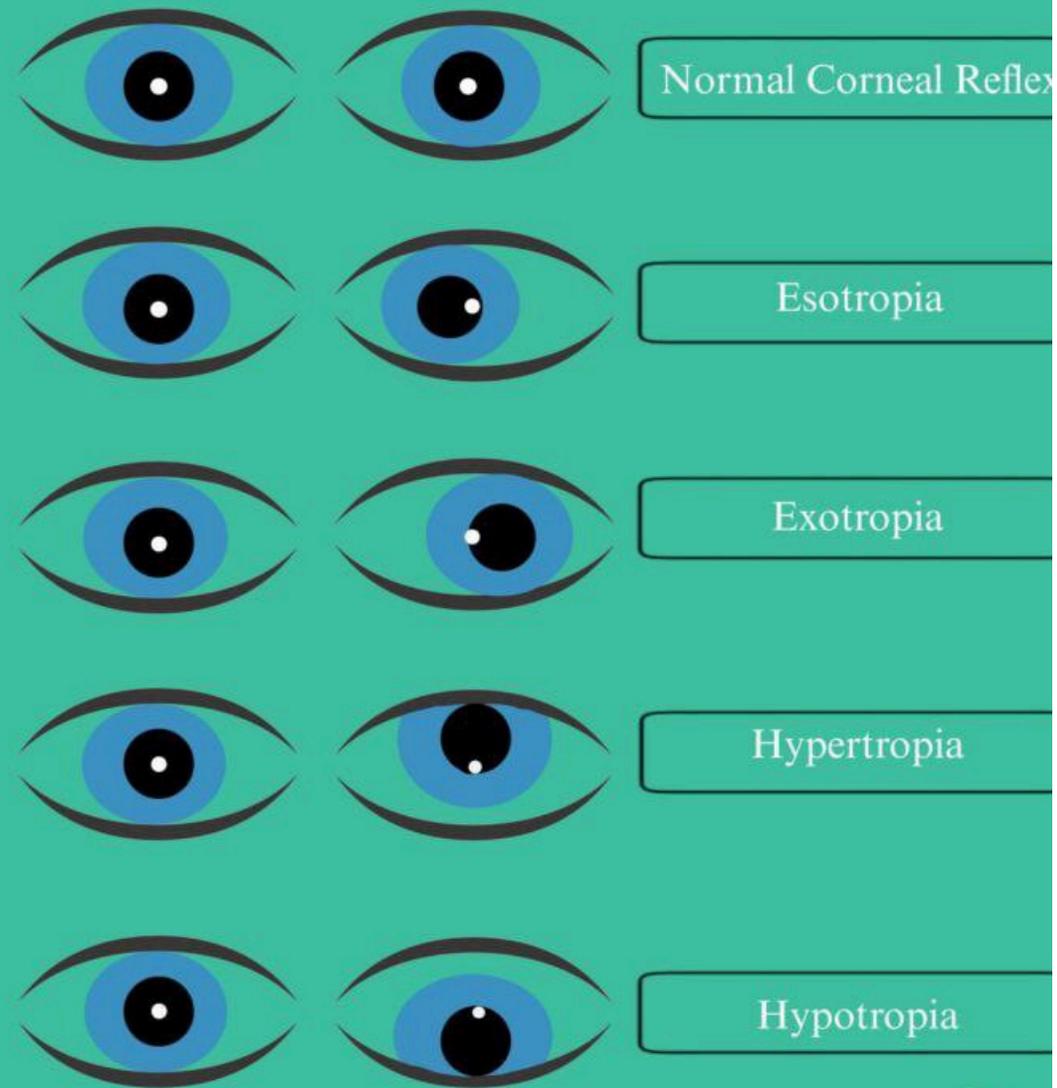
- Sit 1 meter away from the patient and hold a pen torch directly in front of them and instruct them to look at the light.
- Observe the reflection of the light on the cornea in relation to the pupil. The reflections should be symmetrical between the two eyes.
- Ask the patient if they see single or double light (seeing double light may indicate the presence of squint, but not seeing double does not exclude it).



## HIRSCHBERG TEST

- If the reflection is on the temporal aspect of the pupil in one eye, this suggests that the eye is deviated inwards and is described as an esotropia.

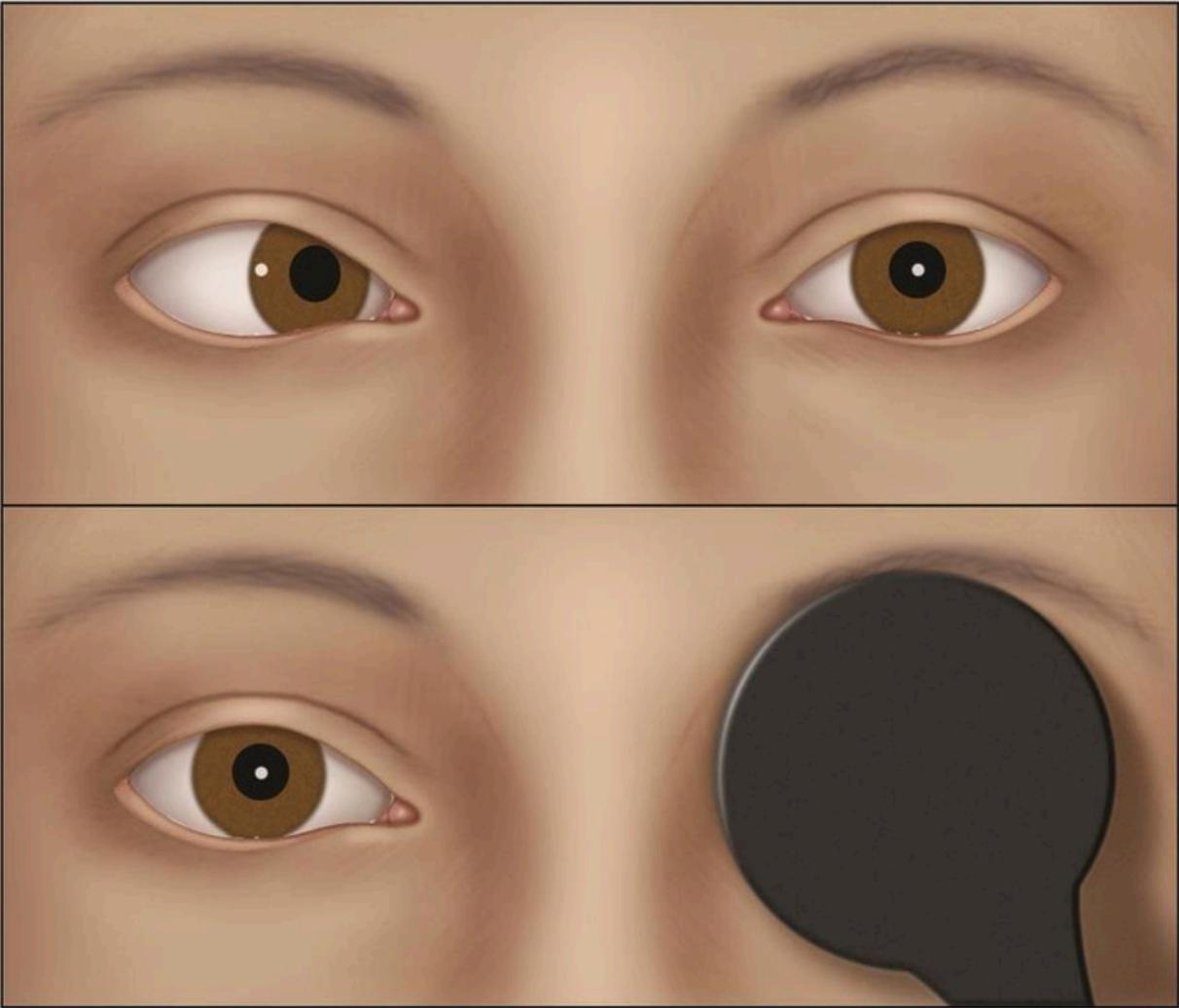
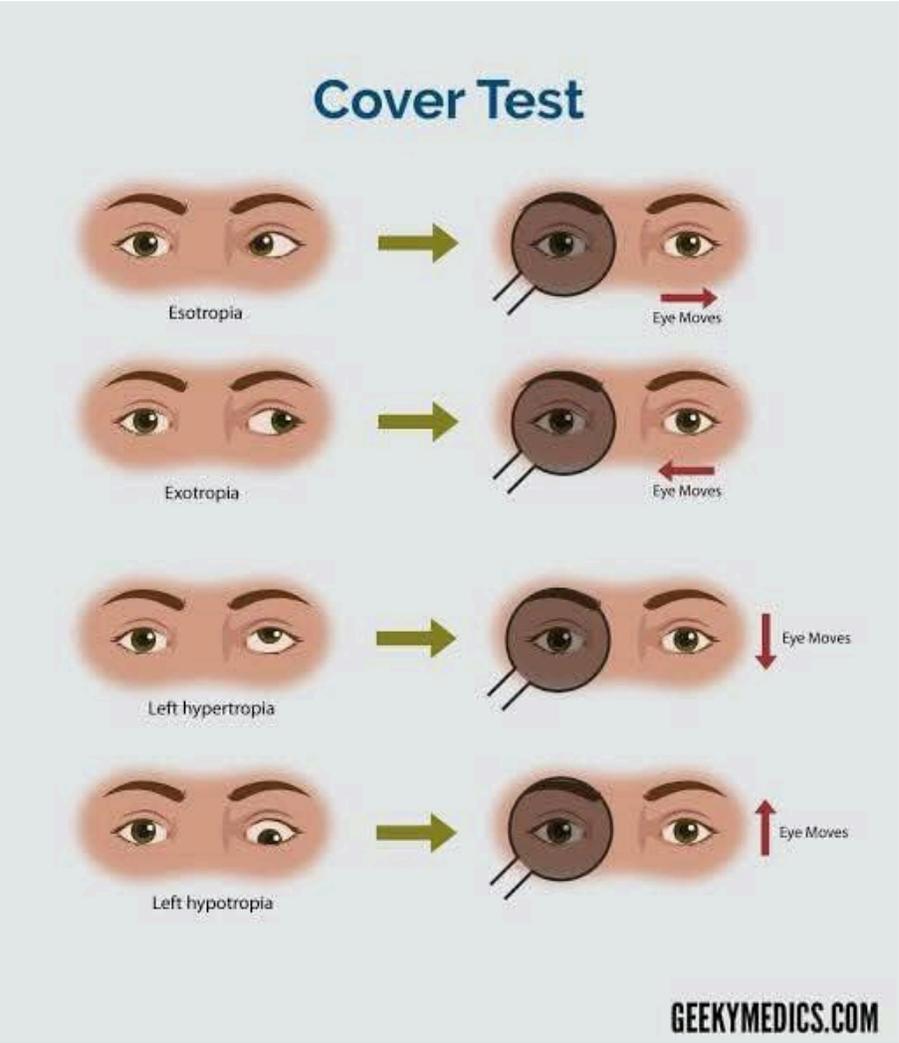
- If the reflection is on the nasal aspect of the pupil in one eye, this suggests that the eye is deviated outwards and is described as an exotropia.



# Detection of squint cont.

- To confirm the presence of squint, perform the **cover/uncover** test:
  - Ask the patient to look at the pen torch at all times and then cover one eye.
  - Look at the uncovered eye for any movement. It may be helpful to repeat this several times.
  - Inward movement of the uncovered eye suggests that it was positioned abnormally outwards and is described as exotropia.
  - Conversely, if the eye moves outwards when the contralateral eye is covered, this suggests that it was abnormally positioned inwards and is described as an esotropia.

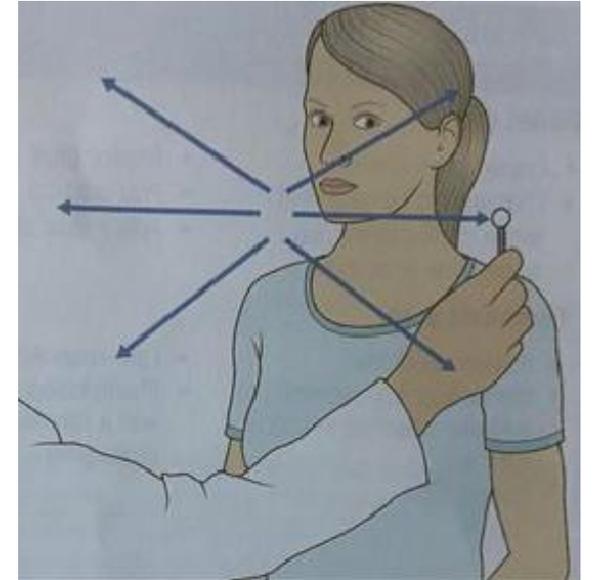
# Cover and Uncover test



# Ocular movements

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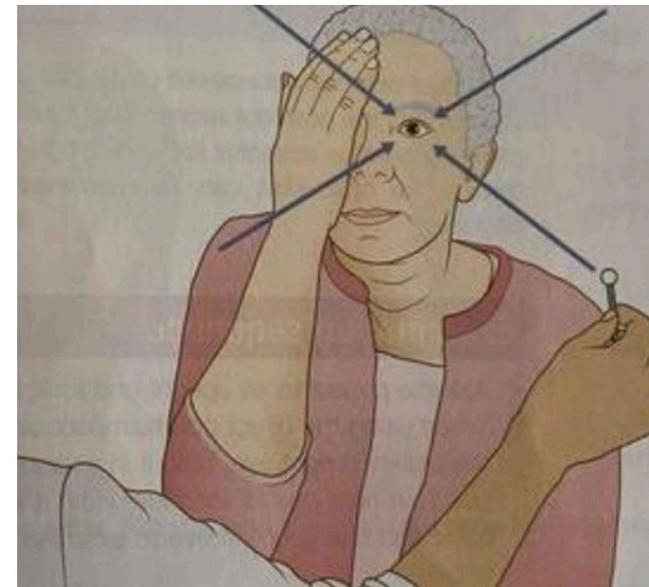
- In the same seating position, ask the patient to look at a target or pen-torch light about 50 cm away.
- Ask them to say if and when they experience diplopia.
- Starting from the primary position, move the target in the six positions of gaze.
- If diplopia is present, ask whether this is horizontal, vertical or a combination of the two.
- Determine where the image separation is most pronounced.
- Look for nystagmus and determine whether the eye movement is smooth.



# Visual fields

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- Sit directly facing the patient about 1 meter away and ask the patient whether they have any difficulty seeing parts of your face.
- Ask the patient to close or cover one eye and cover yours too.
- Hold your hands out and bring an extended finger in from the periphery towards the center of the visual field. Ask the patient to point to it when they first see it. If the patient fails to notice your finger when it is clearly visible to you, their field is reduced in that area.



# Ophthalmoscopy

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- Pharmacological pupil dilatation is essential for a thorough fundus examination.
- Direct & indirect ophthalmoscope.
- Ophthalmoscopy can detect optic disk, lens or vitreous opacities and identify retinal and vascular changes
- to detect conditions such as diabetic retinopathy, hypertensive retinopathy, glaucoma, and papilledema.

# Direct ophthalmoscope

The direct ophthalmoscope is a handheld instrument monocular that provides a direct, upright (erect), and two dimensional image magnified (15x) view of the central retina, especially the optic disc and macula. The patient sits facing the examiner, easy and comfortable to use and it gives small field of view (5-10) best used in cooperative patients with dilated pupils.



# Indirect Direct

The indirect ophthalmoscope . It provides an inverted and reversed image of the retina, three dimensional and more acute but with a larger field of view (30–40°) and better visualization of the peripheral retina. It is especially useful in examining patients with media opacities, children, or when assessing retinal detachments.



# Slit-lamp examination

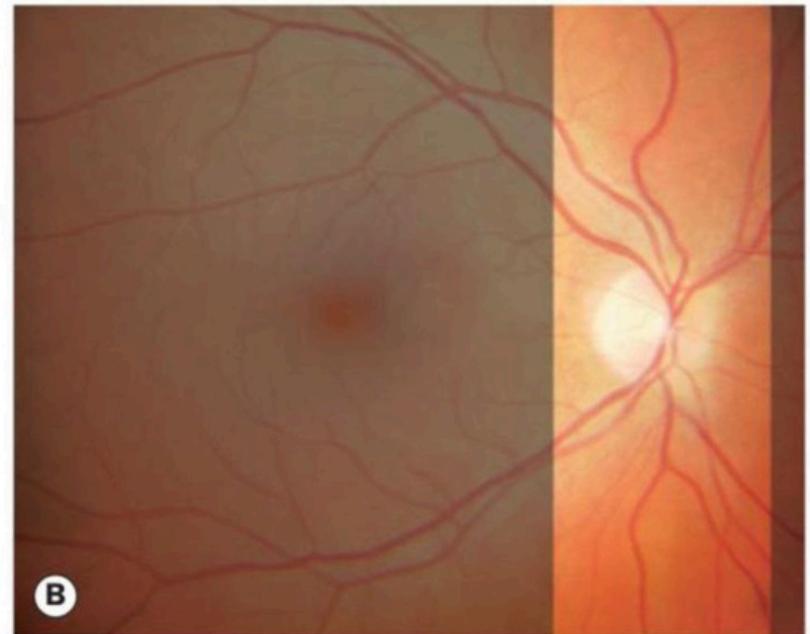
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- Can view the lids and lacrimal system, conjunctiva, cornea and sclera, anterior chamber, pupil, iris, lens, anterior vitreous, and with a handheld condensing lens, it can also be used for detailed examination of the retina and macula.
- Identifying corneal foreign bodies and abrasions .
- Measuring depth of the anterior chamber
- Detecting cells ( RBCs or WBCs ) and flare (evidence of protein ) in the anterior chamber





**Fig. 1.30** Technique of direct ophthalmoscopy (see text)



**Fig. 1.31** (A) Indirect slit lamp biomicroscopy; (B) fundus view

# Intra-ocular pressure

- Intraocular pressure(IOP) is the fluid pressure inside the eye. It is normally between 9 and 21 mmHg.
- Methods of measurement : Applanation, Indentation
- Hand-held tonometry, noncontact air-puff tonometry, Goldmann applanation tonometry.  
\*Goldmann applanation tonometer is the most accurate one but it requires practice as it is difficult to use.



Goldmann tonometry



air-puff tonometry



Hand-held tonometer's

Thank You