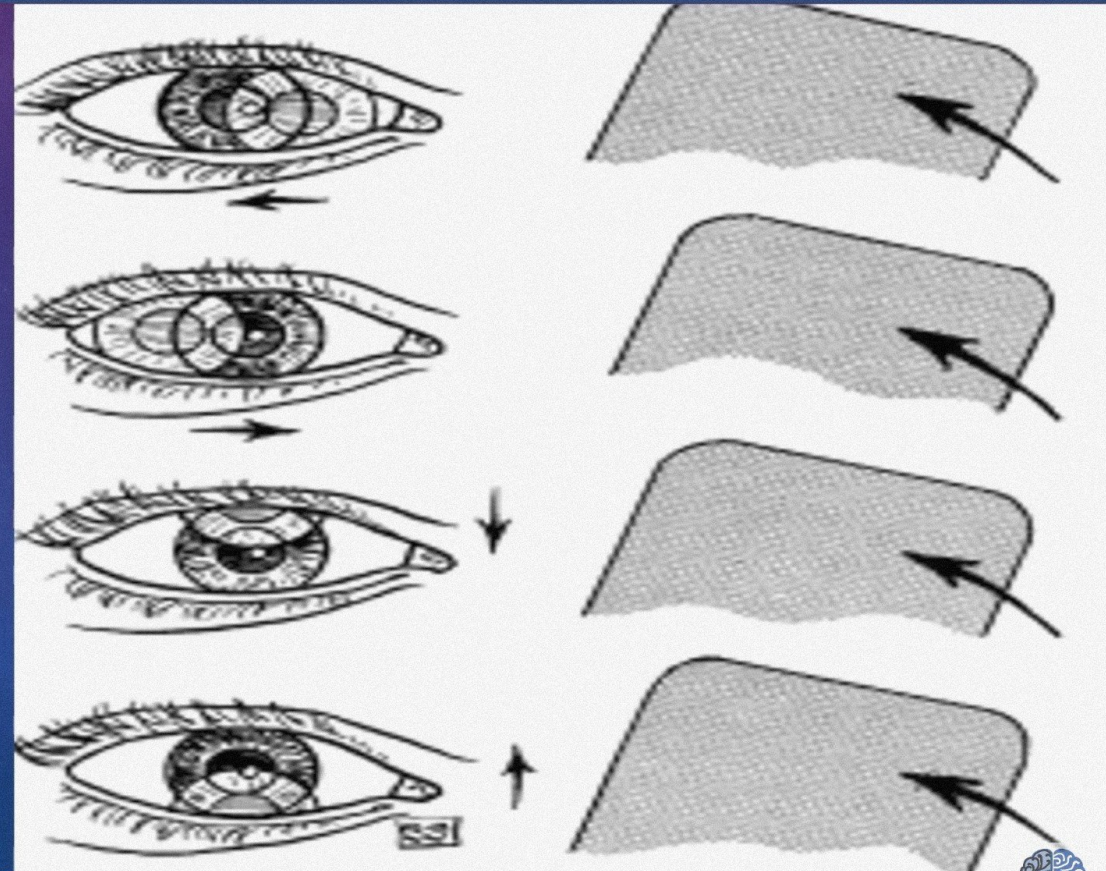


#2 COVER TEST

SQUINT SERIES



WHY DO WE NEED COVER TESTS?

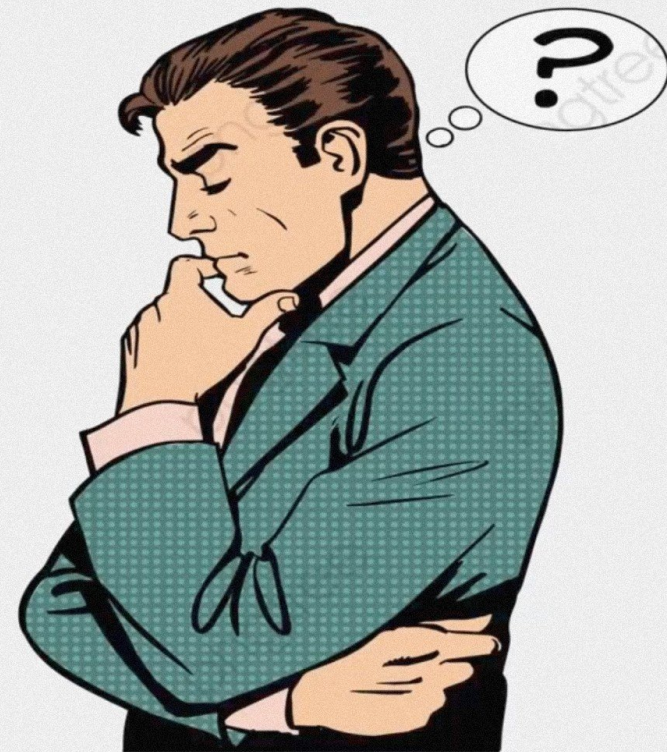
- Inspection alone → not always sufficient to determine a manifest misalignment of the visual axes.
- An **epicanthus, facial asymmetry, or a wide angle kappa** may simulate or conceal a deviation

Strabismus V/s Pseudo
strabismus



CONCEPT BEHIND COVER TEST?

- **Covering one eye of a patient with normal binocular vision interrupts fusion.**



WHAT DO WE NEED ?

- **FOR NEAR** : Correct fixation targets for use at near distance
- **FOR DISTANCE** : The smallest letter that can be seen clearly with the eye with the poorest vision.
- A **fixed toy** with an added auditory stimulus helps, and remote-controlled mobile toys and videos are usually successful.



- **Black 'paddle' occluder**
- **Spielman translucent occluder** made of rigid nonreflective plastic, which allows the examiner to assess the eye position behind the occluder.
- One or both eyes may be covered by this means.



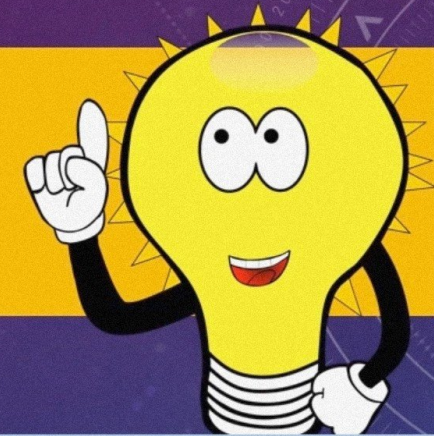
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- **Spielman translucent occluder** made of rigid nonreflective plastic, which allows the examiner to assess the eye position behind the occluder.
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- The patient's view is reduced to an indistinct blur
- Minimize accommodation
- Less dissociating than an opaque occluder.

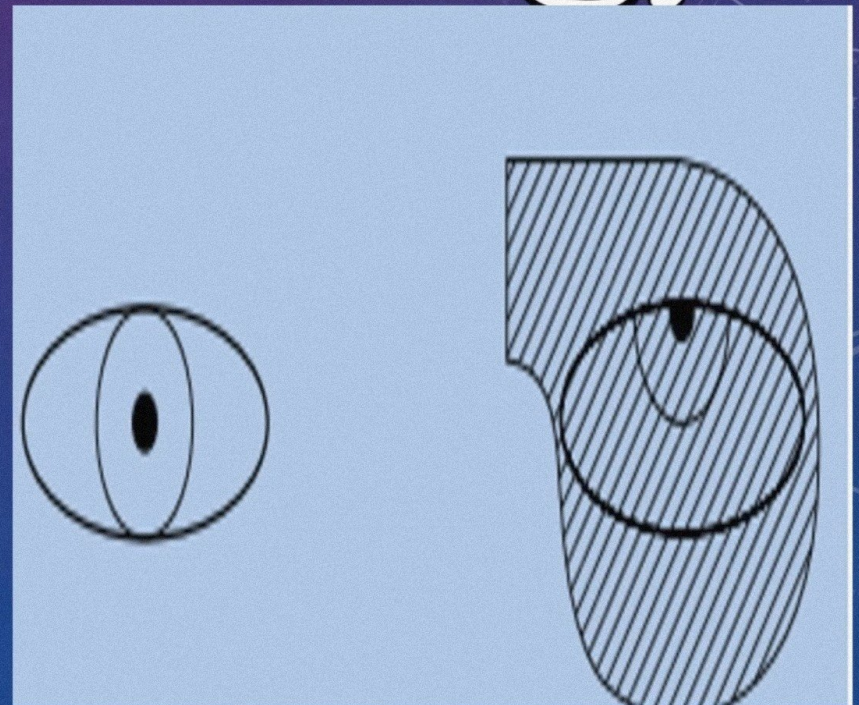


IMPORTANT FACT



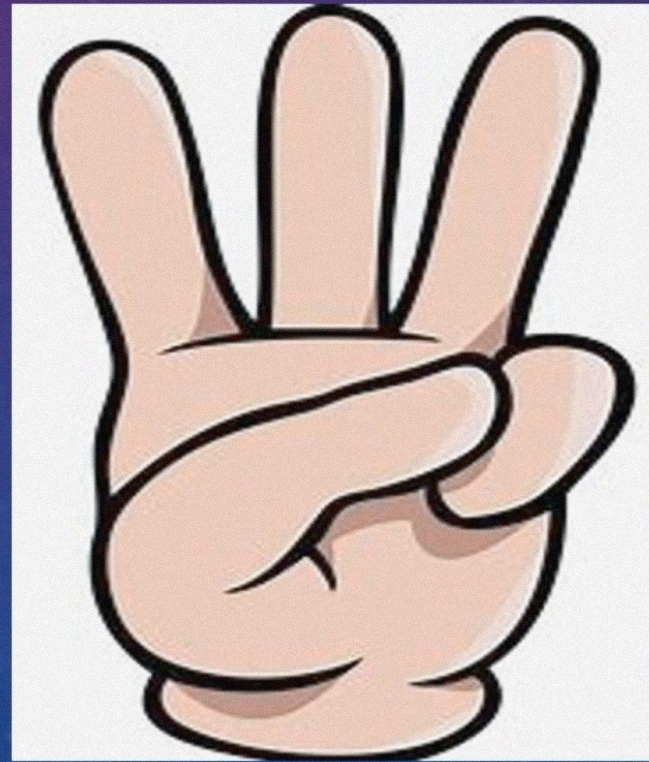
- This method could be useful in conditions such as :-
- **DISSOCIATED VERTICAL DEVIATION (DVD).**

The Bielschowsky phenomenon



TYPES OF COVER TESTS

- **COVER TEST**
- **UNCOVER TEST**
- **ALTERNATE COVER TEST**

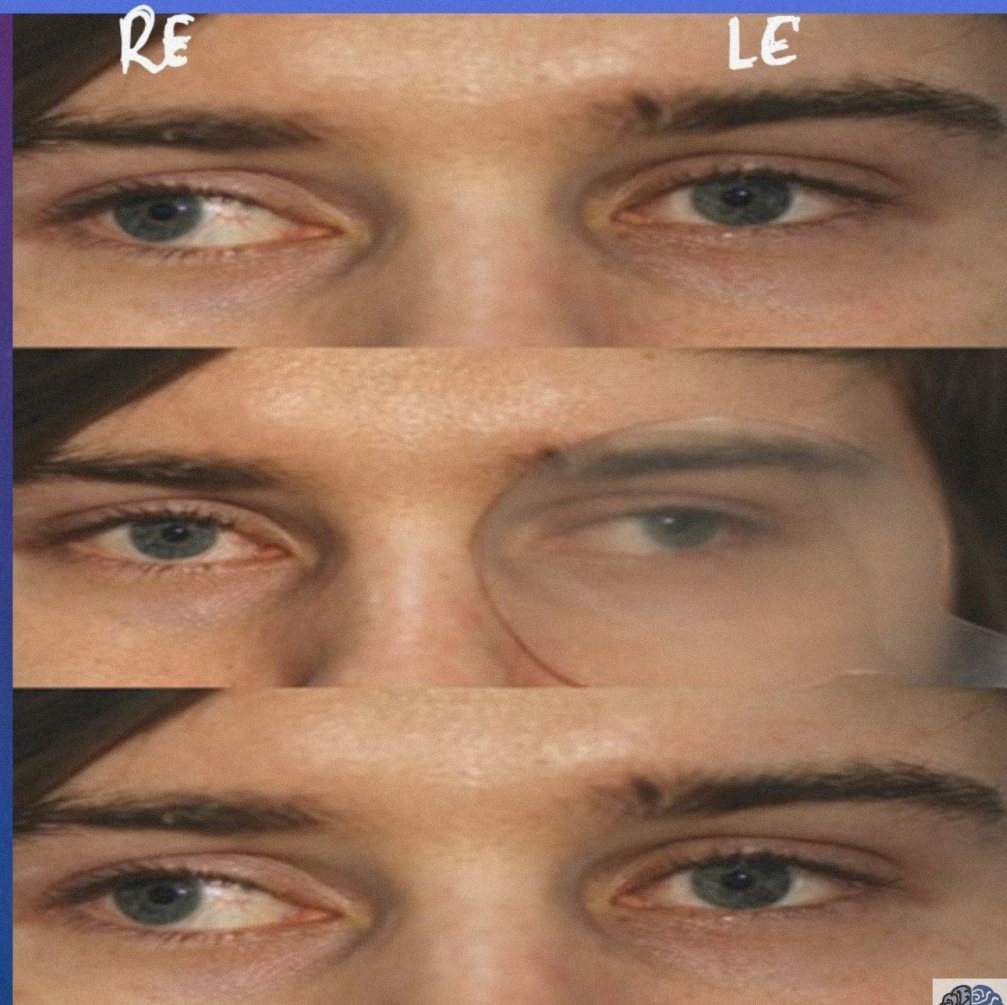


COVER - TEST



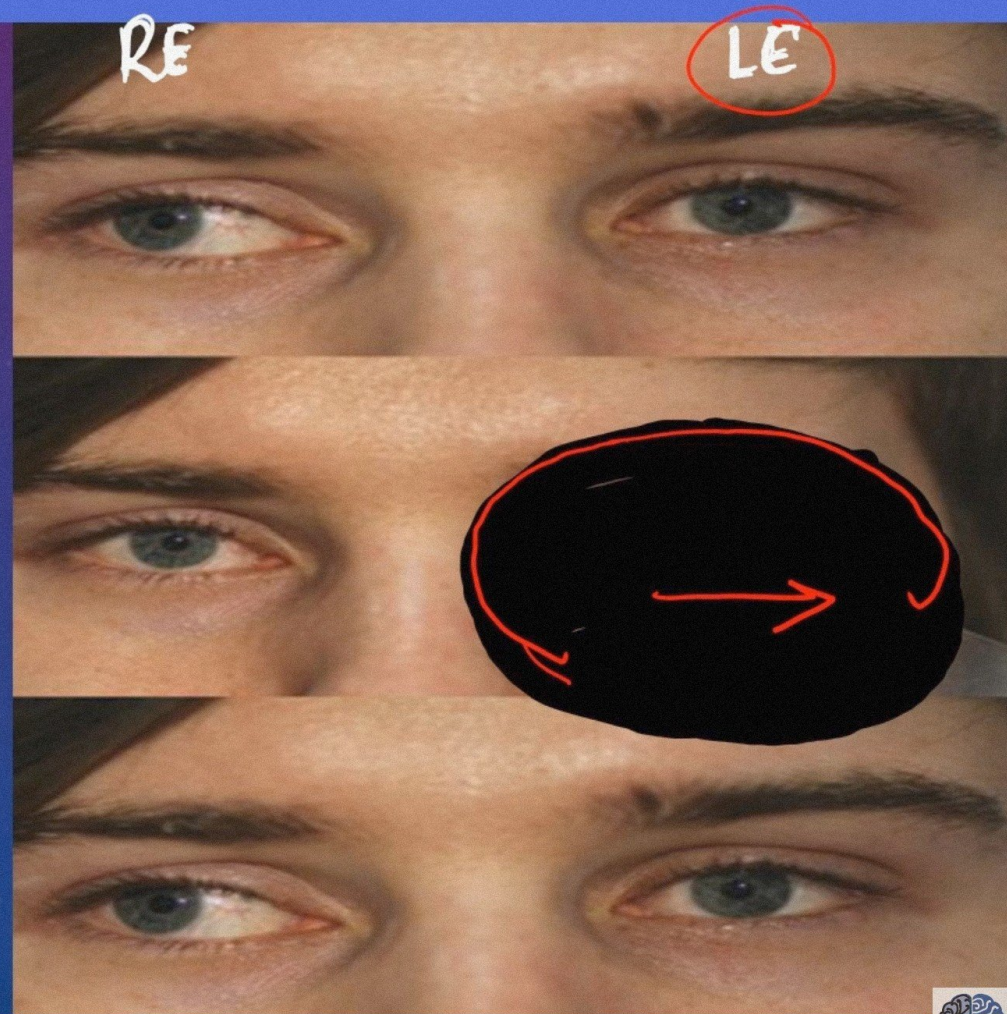
HOW TO DO COVER TEST ?

- If the patient has a Hetero**tropia**.
- The fixating eye is covered
- The opposite eye is observed
- Provided it is able to do so, will make a movement from the heterotropic position to take up fixation
- The covered eye will make a corresponding movement in accordance with **Hering's law**.

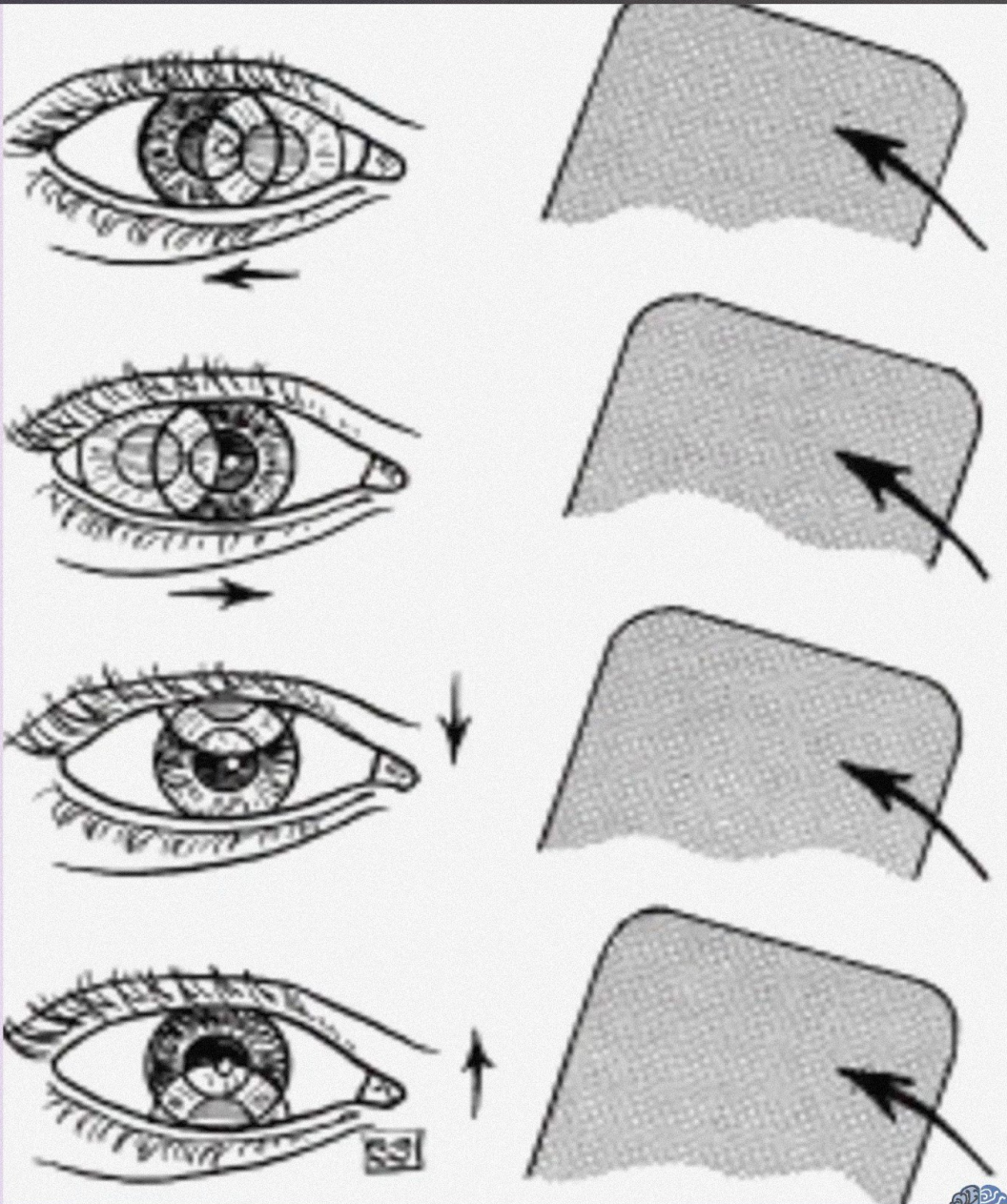


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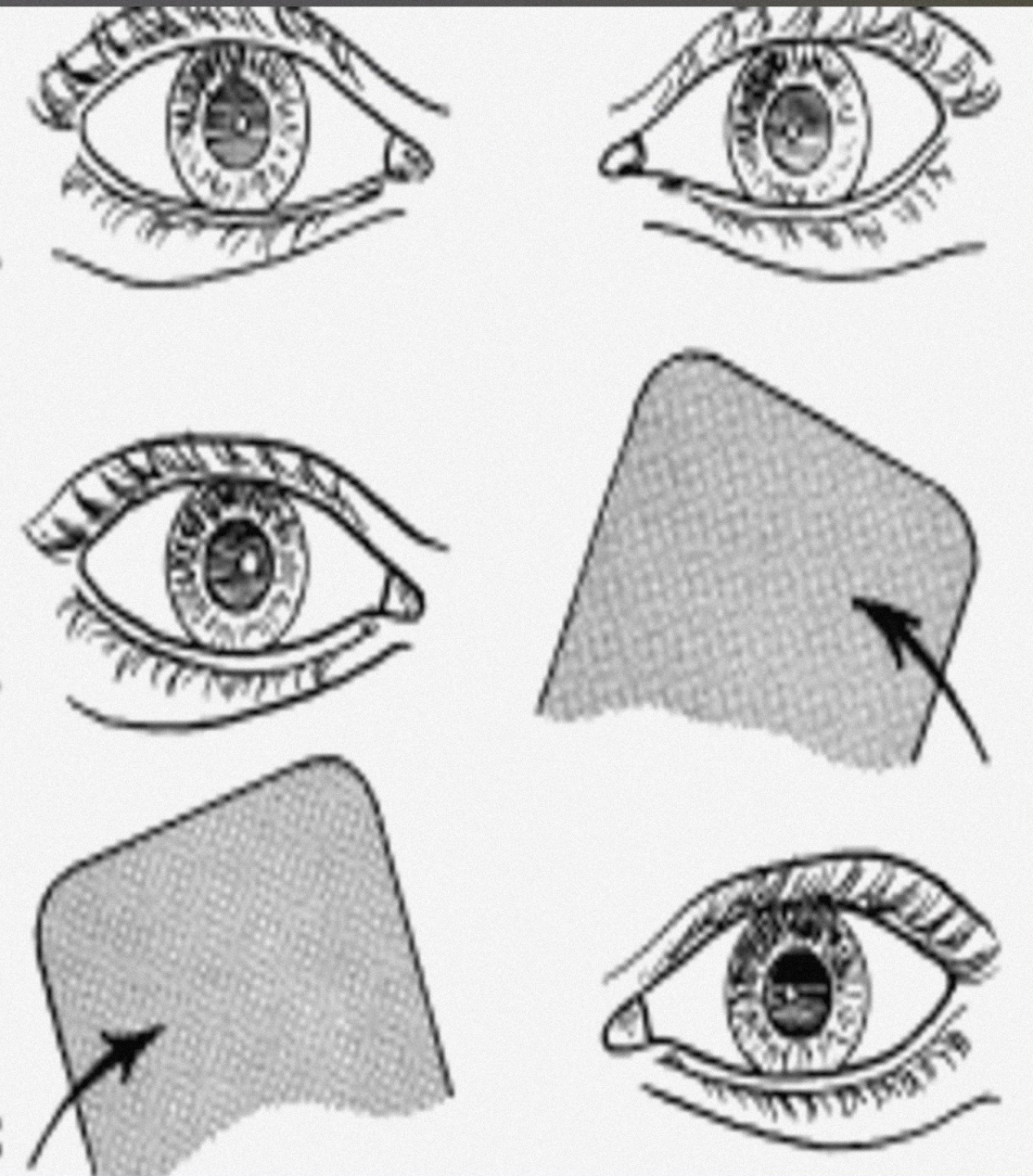
- ❖ In **ESOTROPIA** → It moves toward the temple or outside.
- ❖ In **EXOTROPIA** → The eye taking up fixation moves toward the nose.
- ❖ In **HYPERTROPIA** → moves downwards.
- ❖ In **HYPOTROPIA** → eye moves upwards to take fixation.



WHAT IF THERE IS NO MOVEMENT OF THE EYE ?

- If there is no movement of the fellow eye
- This eye is then covered and the other eye is observed
- **When there is no movement of the fellow eye when either eye is covered → NO MANIFEST STRABISMUS IS PRESENT**





**When there is no movement
of the fellow eye when
either eye is covered →**

**NO MANIFEST STRABISMUS IS
PRESENT**



COVER TEST RESULTS

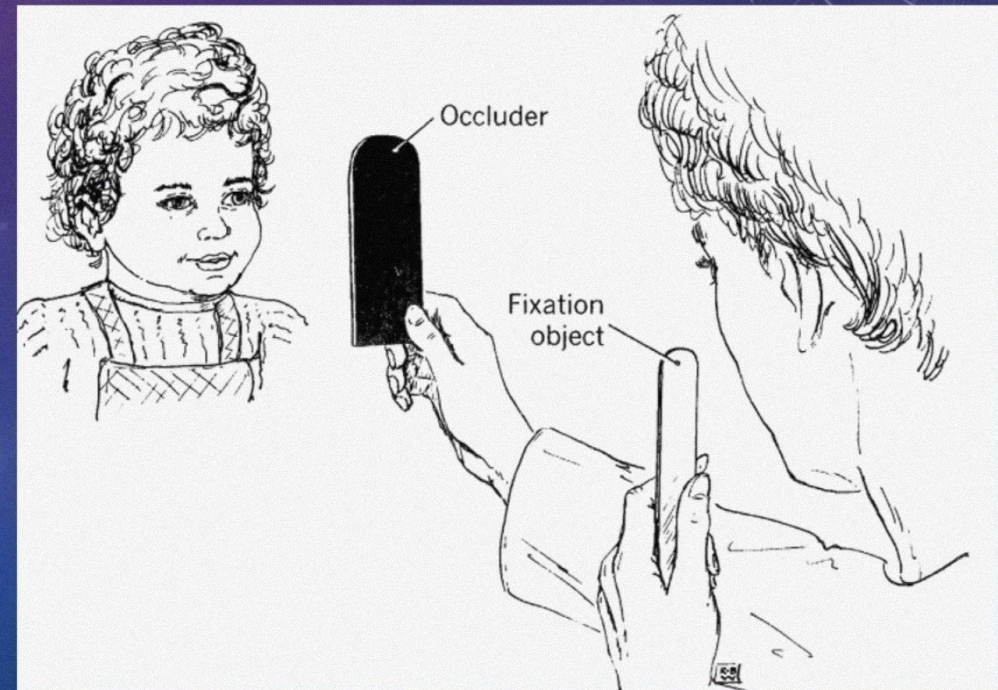
On covering the seemingly fixating eye:-

- a. No movement of the other eye:** there was *binocular fixation* before applying the cover.
- b. Movement of redress of the other eye:** a *manifest* deviation was present before applying the cover.

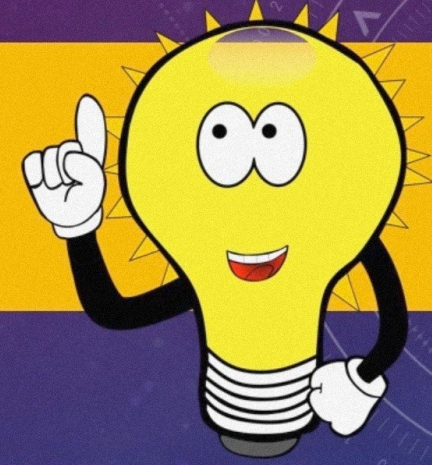


WHAT IS INDIRECT COVER TEST ?

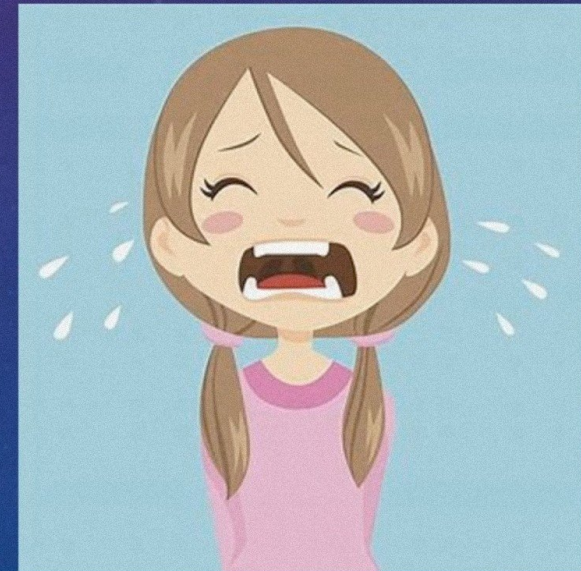
- This test, which has been termed the indirect cover test, does not permit full interruption of fusion but is useful in infants and small children with heterotropia.



CLINICAL NUGGET



- When the cover test is applied to the fixating eye in a strabismic infant and the patient consistently pushes the cover aside
- Performs **searching, nystagmoid movements** with the fellow eye, chances are high that visual acuity of that eye is low and amblyopia must be suspected.
- This application of the cover test is of **inestimable value in the diagnosis of amblyopia in infants**



COVER - UNCOVER TEST



WHAT HAPPENS IN PHORIA OR LATENT STRABISMUS ?

- If a latent strabismus is present, the uncovered eye will **not move**.
- The eye behind the **cover** will deviate and should recover to a straight position on removal of the cover.



HOW TO DO COVER-UNCOVER TEST ?

- One and then the other eye is covered while the patient maintains fixation.
- The examiner now directs **attention to the covered eye** just as the cover is removed.
- If the patient has a heterophoria, the covered eye will deviate in the direction of the heterophoric position.
- When the eye is uncovered, it will move in the opposite direction to reestablish binocular fixation.





Patient seems to BE ORTHOPHORIC

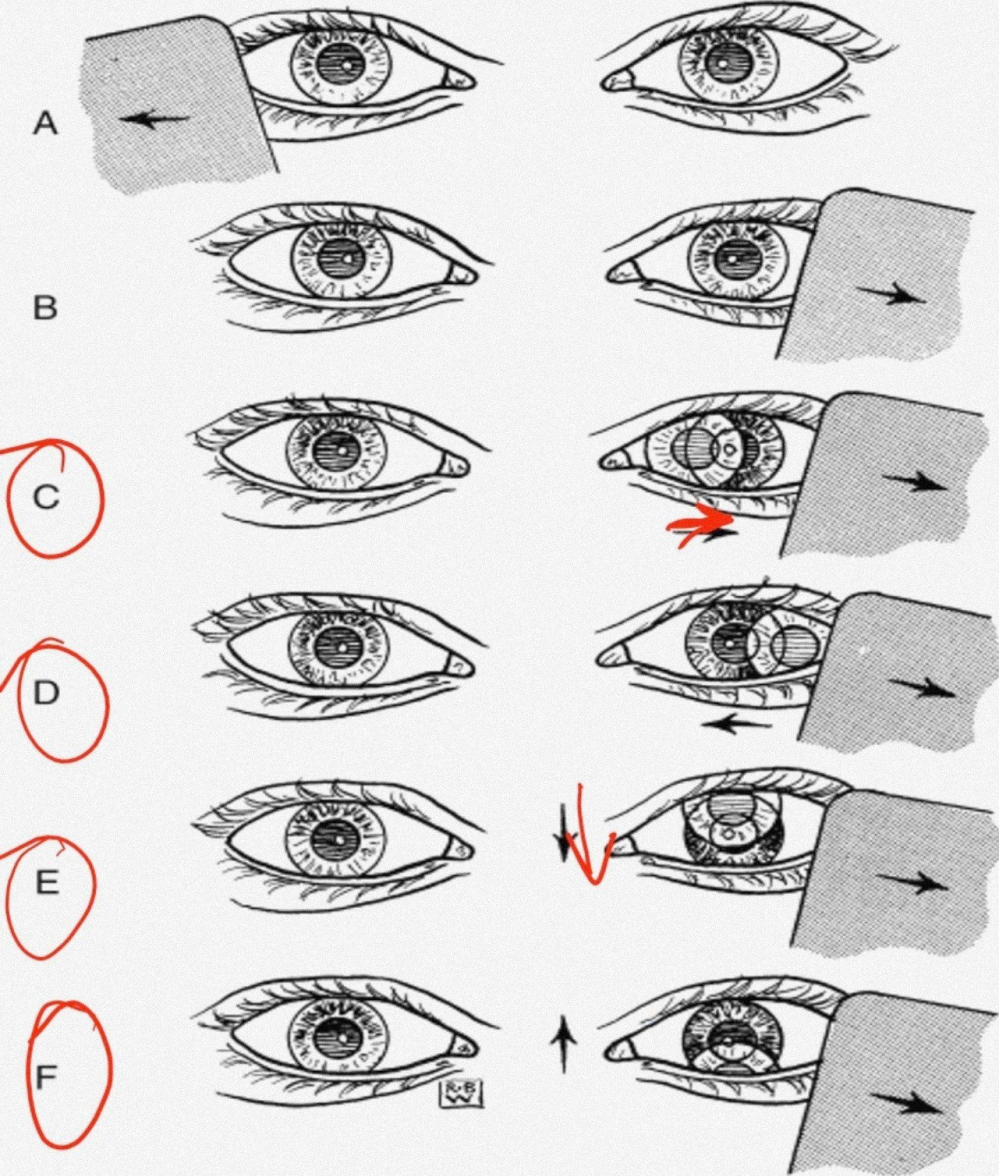


COVER UNCOVER TEST → Eye under cover moves out



On UNCOVERING → RE moves in back and eyes become straight





NO MOVEMENT SEEN IN RIGHT EYE

NO MOVEMENT SEEN IN LEFT EYE

EYE moves out → ESOPHORIA

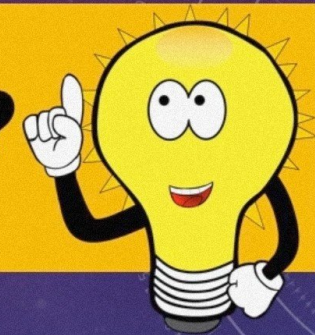
EYE moves inwards → EXOPHORIA

EYE moves down → HYPERPHORIA

EYE moves upwards → HYPO-PHORIA



IMPORTANCE OF SPEED OF RECOVERY ?



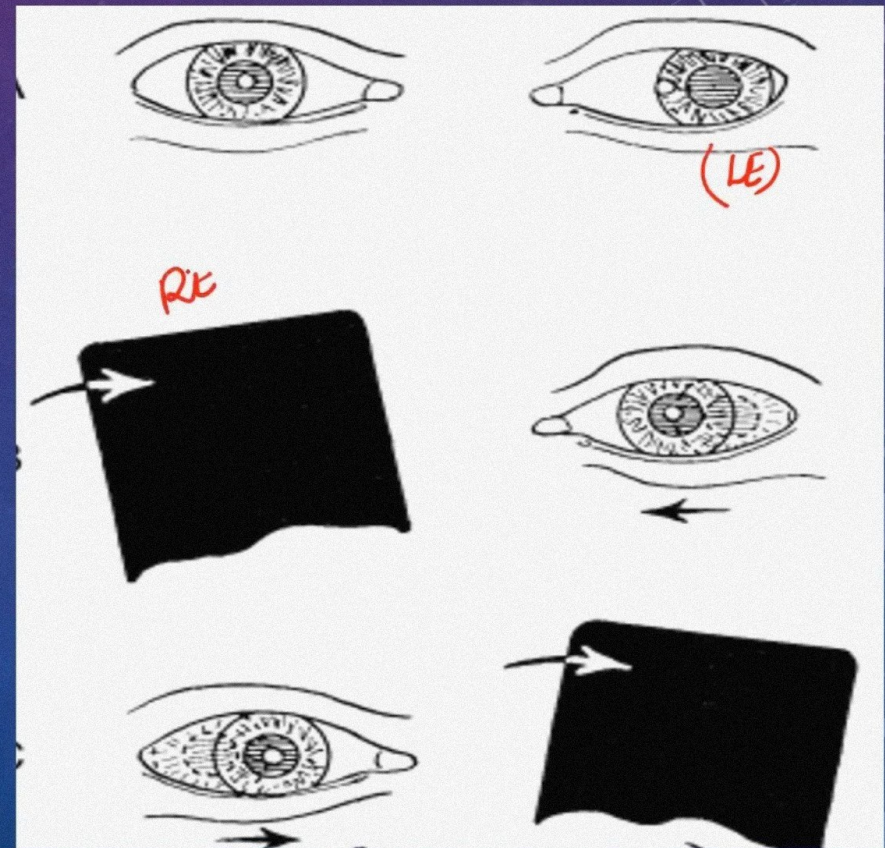
- The **speed of recovery in latent deviations**: Rapid, moderate, delayed or blink (when a blink allows fusion to be regained).
- **Diplopia** may be appreciated prior to recovery and should be noted.
- There may be **no recovery** in a poorly controlled heterophoria or intermittent deviations and the deviation remains manifest.



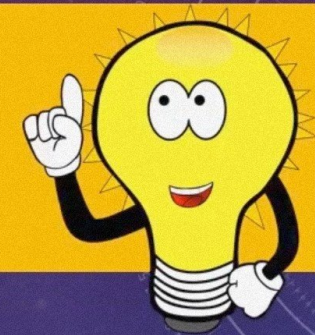
ALTERNATE COVER TEST

- One eye or the other is covered throughout the test and the movement of the other eye is noted as the cover is changed from one eye to the other.

ALTERNATE EXOTROPIA



IMPORTANT CLINICAL FACT



- The cover/uncover test is less dissociating than the alternate cover test.
- Dissociation can be kept to a minimum or increased, depending on the length of time one or other eye is covered.
- **The alternate cover test fully dissociates the eyes → FULL DEVIATION CAN BE BROUGHT OUT**
- **Cannot differentiate latent and manifest deviations.**



IMPORTANCE OF COVER TESTS

- The cover test is the main method of differentiating manifest and latent strabismus.
- The **direction** of the deviation (horizontal and vertical).
- The difference in angle from near to distance fixation.
- The **effect of accommodation** and of the patient's refractive error.
- Other characteristics of manifest strabismus: **constant or intermittent; unilateral or alternating**



- **Estimation of the VA** in a constantly squinting eye by a study of fixation
- **The speed of recovery** in latent strabismus.
- The presence of **latent or manifest latent nystagmus**.
- The cover test will reveal if there is a latent component in infantile nystagmus.
- **Comitance or incomitance** in the primary position by comparison of the deviation fixing with either eye, and in all gaze positions by means of an alternate cover test

