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## **MOTOR EVALUATION OF STRABISMUS**

**Partha haradhan chowdhury<sup>1\*</sup>, Brinda haren shah<sup>2</sup>**

*<sup>1</sup>m.optom, associate professor, PRINCIPAL Department of Optometry, Shree Satchandi Jankalyan Samiti etra Prasikshan Sansthan, Pauri, Affiliated to Uttarakhand State Medical Faculty, Dehradun, India*

*<sup>2</sup>m.optom, guest lecturer Department of Optometry, Shree Satchandi Jankalyan Samiti Netra Prasikshan Sansthan, Pauri, Affiliated to Uttarakhand State Medical Faculty, Dehradun, India*

**\*Corresponding author:-**

*Email:-[optometrypublish@gmail.com](mailto:optometrypublish@gmail.com)*

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**Abstract:** - *This paper describes about different types of tests for motor evaluation of strabismus.*

**Keywords:** - *Light Reflex Test, Cover Test*

## **INTRODUCTION:**

To measure the magnitude of the ocular deviation, prism is used and its direction will be as per the Ocular Deviation. In case of Eso deviation, Base Out prism is used. In case of Exo deviation, Base In prism is used. In case of Hyper deviation, Base Down prism is used. To perform this, always accommodative target is being used. Without Accommodative target, these tests value will be misnomer. Penlight is poor Accommodative Target and Snellen chart is Strong Accommodative Target.

### **A. LIGHT REFLEX TEST:** Light Reflex Test consist of

- I. Hirschberg Test
- II. Krimsky Test
- III. Bruckner Test

Accommodative target is used in performing all the above tests.

#### **1. Hirschberg Test**

It is also known as Corneal Reflex Test but this term is a misnomer. Whatever the reflex is reflected from the cornea, that is the first Purkinje image only. In this test, patient is instructed to look at the light source and observer have to notice the light reflex. According to the reflex, Ocular Deviation is assessed. In case of Exo deviation, reflex will be at the nasal side. In Eso deviation, reflex will be at the Temporal side and In Hyper deviation, reflex will be at the Inferior side. By the position of the reflex, tentative idea of the position of the reflex is obtained.

- If the reflex is at the pupil border, deviation is 15 degree.
- If the reflex is at the Mid Iris, deviation is 30 degree.
- If the reflex is at the Limbus, deviation is 40 degree.

As per the position, approximate prism power will be as follows:

Reflex at pupillary border, prism power will be  $15 \times 2 = 30$  PD

Reflex at Mid Iris, prism power will be  $30 \times 2 = 60$  PD

Reflex at Limbus, prism power will be  $40 \times 2 = 80$  PD

Up to 5 degree nasal shift is considered as a normal and is called "Physiological Positive Angle Kappa."

#### **2. Krimsky Test**

In this test, prism is used according to Light Reflex position. By this test, magnitude of the deviation is measured. i.e. How much eye is deviated? Accommodative Target is used to perform the test. Without it, the test value will be misnomer. In this test, Light is thrown through the prism and Accommodative Target position will be just Juxtaposed to the torch light. In case of Comitant squint, prism can be placed at any eye. But in case of In comitant squint, prism should be placed always in front of the fixing eye.

#### **3. Bruckner Test**

In this test, reflex of both the eyes is compared and seen which reflex is brighter. When performing this test, patient is instructed to look at the Ophthalmoscopic light, otherwise findings of this tests will be misnomer. In deviated eye, Reflex is brighter compared to Non deviated eye.

### **B. COVER TEST** Cover Test consists of:

- Cover Uncover Test
- Alternate Cover Test
- Prism Alternate Cover Test
- Simultaneous Prism Cover Test

#### **• Cover Uncover Test**

To perform this test, Accommodative target is mandatory and patient is instructed to look at the Accommodative Target. In this test, Tropia is diagnosed. Here, fusion should be maintained so occluder should not be kept more than 1-2 second in front of one eye.

#### **• Alternate Cover Test**

Accommodative Target is used to perform this test and patient is instructed to look at that target. In this test, Phoria, Tropia and Phoria-Tropia syndrome is diagnosed. Here, fusion breaks and occluder should be placed in front of one eye for 3-4 seconds and then to another eye.

- **Prism Alternate Cover Test**

In this test, Alternate Cover Test should be performed and prism should be placed in the direction as per the ocular deviation. In case of Esotropia, Base out prism should be placed. In Exotropia, Base in prism should be placed and in Hypertropia, Base Down prism should be placed. During this test, prism should not be stacked with each other, it means, horizontal direction prism should not be placed on the horizontal direction prism. But there may be a chance that, horizontal direction prism may be placed on vertical direction prism. One should always remember that, one eye must be in closed position when changing prism power.

- **Simultaneous Prism Cover Test**

It is used to measure Tropia component of Monofixation Syndrome. Used only in cases of small angle strabismus. In this test, prism is placed in front of the deviated eye and its direction will be according to the deviation and simultaneous occluder is placed on the another eye. This procedure is continued till neutralization is achieved. But it is to be remembered that after changing prism, practitioner must wait several seconds to repeat the same process so that patient can regain binocular fusion

### **C. SUBJECTIVE TEST:**

It comes under fovea to fovea test. In this test, patient is instructed to wear Red-Green goggles. On the white background fixation target will be Red-Green linear stick light. Practitioner is directed to use Red linear stick light and patient is directed to use Green linear stick light. At first, patient is directed to place the light on it accordingly. If there is a difference between it, it is diagnosed as Incomitant Strabismus.

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