

## Exophthalmometry-A Review

**Sirisha Vinzamuri\* and Ksheeraja Harshvardhan***Department of Ophthalmology, M.S Ramaiah Medical College, India*

**\*Corresponding Author:** Sirisha Vinzamuri, Department of Ophthalmology, M.S Ramaiah Medical College, India.

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**Abstract**

Exophthalmometry is a test that's routinely done in the evaluation and measurement of proptosis. In this article various methods of performing this test are described and the practical nuances of Hertels exophthalmometry are detailed upon.

**Keywords:** Exophthalmometry; Hertels Exophthalmometry

Exophthalmometry is a clinical procedure done to measure the antero posterior position of globe within orbit with respect to the orbital rim [1]. Exophthalmometry may be defined as the measurement of the distance between two parallel planes, one tangent to the apex of the cornea with the eye in the primary position, the other passing through the lateral orbital margin [2].

It is performed to:

1. Quantify the amount of displacement.
2. To rule out other cases of pseudo-proptosis like ipsilateral lid retraction, contralateral ptosis and palpebral asymmetry [1].

There are various kinds of exophthalmometry techniques as follows:

1. Clinical exophthalmometry
2. Stereo photographic method of exophthalmometry
3. Radiographic exophthalmometry.

Clinical methods are:

1. Zehender's exophthalmometer

2. Gormaz exophthalmometer
3. Luedde exophthalmometer
4. Hertel's exophthalmometer
5. Davenger's exophthalmometer
6. Watson's ocular topometer
7. Measurement of displacement of globe with Perspex ruler.

Of these the most commonly used is the Hertels exophthalmometer which uses the lateral orbital rim as an important landmark and is commonly used to measure axial proptosis [1,2].

**Method of doing Hertels exophthalmometry**

After taking the patients consent for doing the procedure, the grooved arcs of the two foot plates of the exophthalmometer are placed on the lateral orbital rim and the cross bar is aligned in such a way that the red lines on the graduations in mirrors in the foot plate are aligned and this alignment is checked by the examiner before taking the measurement. The distance between the two orbital rims is recorded on the cross bar and this is documented as the base measurement [3]. The patient is asked to look at the examiners eyes and the distance of the corneal apex from the lateral or-

bital rim is recorded for both the eyes. Eye is seen from the lower half of the scale and scale is seen through the upper half and this

eliminates parallax. The cross bar can measure values from 75 mm to 121 mm and proptosis range from 0 to 35 mm.



### Figure

The measurement on the cross bar is 110 mm and the left eye corneal apex in the reflection is at 21 mm.

Naugle exophthalmometer is used when there is deficiency in the lateral orbital walls, it uses the superior and inferior orbital rim for measurement [4]. Lueddes exophthalmometer is one of the fastest easiest and least expensive devices to measure proptosis. It is measured at a right angle at the lateral orbital wall and eliminates parallax error [4].

### Conclusion

Every case of possible proptosis must be evaluated by exophthalmometry to rule out pseudo-proptosis and in cases of thyroid eye disease documentation of extent of proptosis helps assess disease activity and response to on-going therapy.

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