



## REFRACTIVE ERORRS

جامعة ساوة

كلية التقنيات الصحية والطبية

قسم تقنيات البصريات

الثالة المرحلة

The near point:

the near point of eye is the minimum distance of the object from the eye , which can be seen distinctly without strain. For a normal human eye, this distance is 25 cm .

Accommodation of eye:

the eye extraordinary ability to modify the focal length of the lens by changing the curvature of the eye lens.

Accommodation allows the eye to adjust focus from seeing (tune) itself to seeing nearer objects.

On accommodation the pupil constrict with contraction of the ciliary muscle ,the lens becomes more spherical, and the vitreous pushes forward ,moving the lens forward ,increasing its effective power

### Presbyopia:

This is a decrease in near vision, which occurs in all people at about age 43. The normal eye has to adjust +2.50 D to change focus from distance to near. This is called accommodation and is accomplished when the shape of the lens becomes more convex. The eye's ability to accommodate decreases from +14 D at age 14 to +2 D at age 50. Middle-aged persons are given reading glasses with plus lenses that require updating with age. The additional plus lens in a full reading glass blurs distance vision. Half glasses and bifocals are options that allow for clear distance vision when looking up. Noline progressive bifocals are more attractive, and also allows for vision at the middle distance of 1 meter from the eye, but is more expensive.

40–45 years +1.00 to +1.50 D  
50 years +1.50 to +2.00 D  
Over 55 years +2.00 to