SAWA UNIVERSITY

LECTURE TITLE

جامعة ساوة

كلية التقنيات الصحية والطبية

قسم تقنيات البصريات

المرحلة الرابعة

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رقم المحاضر 3

TRIAL CASE, TRIAL FRAME

Trial case it is a box made of wood or plastic and contains a different set of lenses for the purpose of correcting refractive errors in the patient's eyes to achieve good visual acuity. A trail case is essential equipment for optometrists also known as a trial box.

It is a case that contains trial lenses a trial spectacle frame, prisms, filters, occluders, and other accessories. A trial case is used for objective and subjective refraction, diplopia testing, diagnosing strabismus (squint), and assessing binocular vision.

Accessories of Trial Case

1. Trial Frame
2. Trial Lens
3. Prism
4. Other Accessories

1. Trial frame

Trial frame is an eyeglass frame designed to permit the insertion of different lenses used to correct refractive errors of vision. It is characterized by being lightweight and can be adjusted, and it should be comfortable in the nose resting and readily adjustable and allow accurate centering vertically and horizontally for each eye (allows adjustment for pupil distance and lens height).

2. Trial lenses

Trial lenses are a set of lenses different in type and power arranged in pairs, they are used by trial and error to test vision and diagnose refractive errors and eye pathology.

Types of trial lenses:

1. Optical lenses: - use to correct the refractive errors.
2. Accessory lenses: - use to diagnose the pathology.

Types of optical lenses:

1. Full aperture lens

• Approximately 38 mm diameter
• do not obscure the patient's face
• Biconvex or biconcave form
• Disadvantage: heavier and thicker large additive errors

2. Reduced aperture lens

● Lenses of 20mm diameter mounted in the metal rim of 38mm diameter
● Plano convex and Plano concave
● Used for refraction and neutralization
● for refraction, curved surface should face the eye
● for neutralization, curved surface of the trial lens is placed against to the curved surface of spectacle lens

a. Spherical lenses

• There are 32 pairs of spherical lenses in plus and minus power (a pair of positive lenses ranging from +0.12 to +20.00D and a pair of negative lenses ranging from -0.12 to -20.00D).


+0.12
+0.12
-0.12
-0.12

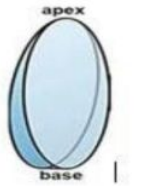
tion:
• 0.25 to 4.00D in increment of 0.25D
• to 6.00D in increment of 0.50 D
• 6.00 to 14.00D in increment of 1.00 D
• 14.00 to 20.00D in increment of 2.00D
Uses:
• Checking the refracting error, concave spherical lenses (negative): which are used in
the treatment of myopia (nearsightedness), convex spherical lenses (positive): which
are used in the treatment of hypermetropia (farsightedness), and presbyopia.
Note
The diopter is the unit of measure for the refractive power of a lens. The power of a lens is defined as the reciprocal of its focal length in meters, or D = 1/f, where D is the power in diopters and f is the focal length in meters.
b. Cylindrical lenses
• Negative and positive cylindrical lenses: 19 pairs of CYL lenses Power range in cylinder : Pair of positive lenses ranging +0.12 to +6.00D, Pair of negative lenses ranging -0.12 to -6.00D
• which are used to for correction of astigmatism, and checking the refractive error differ from the other by the presence of two red lines on both ends of the lens to determine the axis of

Variations

- 0.25 to 3.50D in increment of 0.25D
- 3.50 to 6.00D in increment of 0.50D

3. Prism lens

is a refractive medium having two plane surfaces inclined at an angle and the base of the prismatic lens is thicker than the apex. Prismatic lenses are used in correct and measure strabismus for the measurement and correction of the angle of deviation.



Prism lens