

EXPERIMENT-7

Aim: To demonstrate the visual acuity.

Requirements: Stellen and Jaeger's chart pin occluder, card or tissue paper, Torch or flashlight.

Principle:

Snellen's Chart Test:

This space related resolution is useful to check vision clarity. The acuity of distant and Visual acuity (VA) is an ability of visual processing system to discriminate between two far vision is commonly tested by Snellen's test and Jaeger's test respectively which consist a series of letters arranged in lines each diminishing and increasing in size.

The Snellen's chart consists of the topmost line which can be read by a normal person at 6m The distance of subject from the chart is of 6 m/ 20 feet which is considered as optical a distance of 60m and subsequent smaller letter lines at the distance of 36, 24, 18, 12, 9 and infinity and state of completely relaxed ciliary muscles. Visual acuity is read as 6/60, 6/36, 6/24, 6/18, 6/12, 6/9 and 6/6; the normal person's vision is $V = 6/6$. The upper number refers next to the line on the chart) is the distance in metres at which a 'normal' eye is able to read to the distance of the chart from the subject (6 m) and the lower number (usually written that line of the chart. $TV < 6/60$ the subject is asked to count the fingers (finger counting method) or to perceive hand movements (hand movement method) or to perceive focused light (light perception method).

Jaeger's Chart Test:

The Jaeger's chart consists of letters or paragraphs of various sizes, increasing from 237 mm to 25mm. The size of the print read by the subject determines the near vision acuity. The smallest point is N5 and the largest point is N36. As you progress to larger point, the lettering size increases for lesser visual acuity. Persons with normal vision should be able to read the smallest print in good lighting, at a comfortable reading distance. The card is held 14 inches (356 mm) from the person's eye for the test. A result of 14/20 means that the person can read at 14 inches what someone with normal vision can read at 20 inches.

Procedure:

(a) Distant vision:

- 1 Ensure adequate natural light or make provision of required illumination on the chart
- 2 Ask the subject to sit, at a distance of 6 m/ 20 feet from the Snellen's chart.
3. Test one eye at a time, at first without any spectacles (if already has worn).
4. Ask the subject to cover one eye with a plain occluder, card or tissue paper.
5. Ask the subject to read the line from the top of the chart and from left to right.
6. If the subject cannot read the largest (top) letter at 6 m, move him/her 1 m closer at a time, until the top letter can be seen; the VA will be recorded as 5/60 or 4/60 etc.

7. If the top letter cannot be read even at 1 m (1/60), finger counting method is used. Hold up your fingers at varying distances of less than 1 m and check whether the subject can count them. This is recorded as counting fingers (CF): VA=CF.
8. If the subject cannot count fingers, hand movement method is used. Wave your hand and check if subject can see this. This is recorded as hand movements (HM): VA=HM.
9. If the subject cannot see hand movements, light perception method is used. Focus a torch toward the eye and ask if they can see the light. If they can, record 'perception of light' (VA=PL). If they cannot, record 'no perception of light' (VA=NPL).
10. After testing without using spectacles, test the subject while wearing any current distance spectacles and record the VA in each eye separately.
11. Repeat the whole procedure for the second eye.
12. Summarize the VA of both eyes.

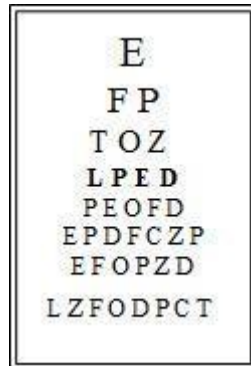


Figure 3: Snellen's Chart

(b) Near vision:

- 1 Place the chart at 14 inches from the subject's eye and illuminate the chart at that distance,
2. If the subject uses glasses, then the test shall be performed using it.
3. Place the occluder in front of the eye that is not being evaluated. The first evaluated eye is the one that with which the subject is seeing less.
4. Start with the big letters and then proceed to the smaller ones. The subject shall identify each letter on the line and communicate it to the observer.
5. Change the occluder to the other eye and proceed again as per the 4th step.
6. Summarise the VA of both eyes.

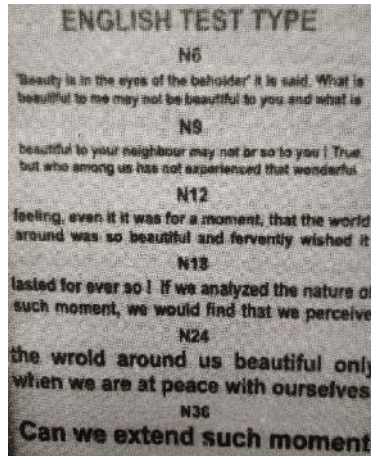


Figure 4: Jeager's Chart

Observation: In this experiment, We have studied about visual acuity.

For distance Vision

Eye	VA	VA= (+/ -)	VA =(+/-)	VA= PL(+/-)
Right	6/....			
Left	6/....			

For Near Vision

Eye	VA
Right	6/....
Left	6/....

(VA= Visual Acuity; CF= Counting of fingers; HM= Hand movements; PL= Perception of light)