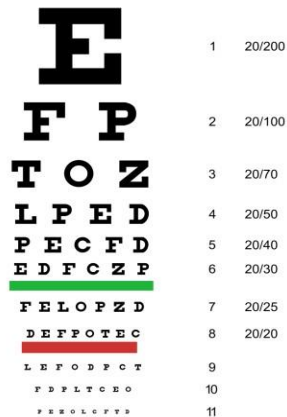


Assessment of visual acuity



Begin by assessing the patient's **visual acuity** using a **Snellen chart**. If the patient normally uses **distance glasses**, ensure these are **worn** for the assessment.

1. Stand the patient at 6 meters from the Snellen chart.
2. Ask the patient to cover one eye and read the lowest line they are able to.
3. Record the lowest line the patient was able to read (e.g. 6/6 [metric] which is equivalent to 20/20 [imperial]).
4. Repeat the above steps with the other eye.

Recording visual acuity

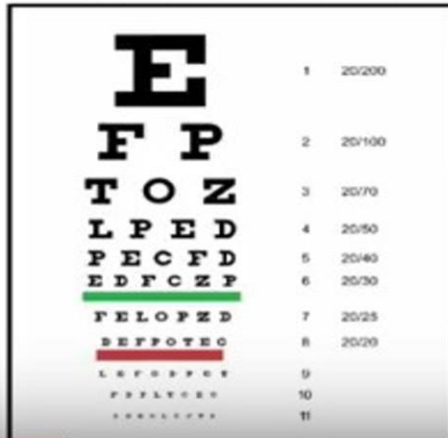
Visual acuity is recorded as chart distance (numerator) over the number of the lowest line read (denominator):

-If the patient reads the 6/6 line but gets 2 letters incorrect, you would record this as 6/6 (-2).

- If the patient gets more than 2 letters wrong, then the previous line should be recorded as their acuity.

When recording the vision, it should state whether this vision was unaided (UA) or with Glasse

Snellen's chart used to measure visual acuity



- 20/20 means a "normal" human being should be able to see when standing 20 feet away from an eye chart
- In metric, the standard is 6 meters and it's called **6/6 vision**
- If you have (20/"X") vision, it means that when you stand 20 feet away from the chart you can see what a normal human can see when standing "X" feet from the chart.

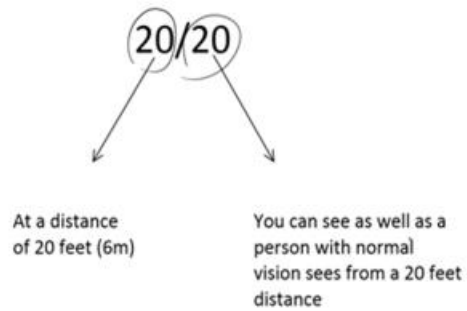
• core 6 / 6, it means you are able to see things located 6 metres away. This is considered to be the normal condition.

6 / 9 denotes that you are seeing objects from 6 mtrs, which are normally seen by a person who is at 9 mtrs. It implies that your vision is slightly below the normal condition.

6 / 12 & 6 / 18 - It means you are able to read letters at 6 mtrs, what a normal person can read at 12 mtrs & 18 mtrs

This is also not a normal condition.

Why is it called 20/20?



	E	1	20/200
Cat	F P	2	20/100
Dog	T O Z	3	20/70
	L P E D	4	20/50
	P E C F D	5	20/40
	E D F C Z P	6	20/30
Horse	F E L O P Z D	7	20/25
Human	D E F F O T E C	8	20/20
	L E F O P P C T	9	
	F P P L T C E O	10	
	F E R R L I F F A	11	

Direct pupillary reflex

Assess the direct pupillary reflex:

- Shine the light from your pen torch into the patient's pupil and observe for pupillary restriction in the **ipsilateral** eye.
- A normal direct pupillary reflex involves constriction of the pupil that the light is being shone into.

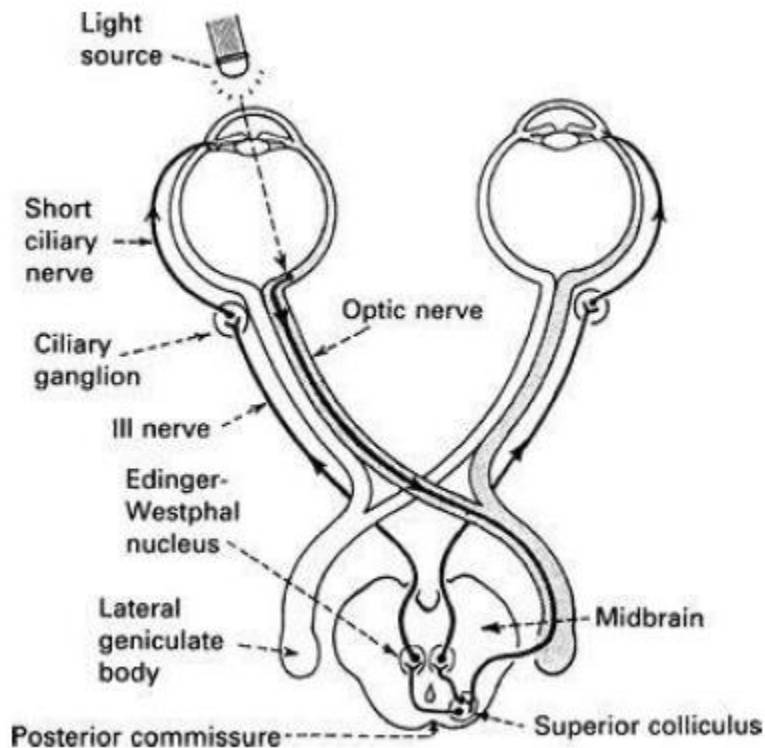
Consensual pupillary reflex

- Once again shine the light from your pen torch into the same pupil, but this time observe for pupillary restriction in the **contralateral** eye.
- A normal consensual pupillary reflex involves the contralateral pupil constricting as a response to light entering the eye being tested

Path way of Pupillary reflex :

When light is shone into the right eye, the photosensitive retinal ganglion cells of the right eye convey this information to the right optic nerve, which connects to the right pretectal nucleus of the upper midbrain.

Axons then connect from the pretectal nucleus to the neurons in the right Edinger-Westphal nucleus, whose axons run along both right and left oculomotor nerves. The oculomotor nerves synapse on the ciliary ganglion neurons of each respective eye, which innervate the constrictor muscles of the irises. This stimulates bilateral pupillary constriction



If there is a lesion in the left optic nerve, what would be the pupillary response if a light is shone into the right eye versus the left eye?

A. Right eye

There will be pupillary constriction of both eyes, because the signal is transmitted from the right optic nerve to bilateral Edinger-Westphal nuclei. These nuclei then transmit the signal to the efferent part of the reflex arc (left and right oculomotor nerves), which is intact for both eyes. Oculomotor nerves signal to both pupillary constrictor muscles via the ciliary ganglia.

B. Left eye

There will be no pupillary response in either eye, because no signal is transmitted by the damaged left optic nerve to activate the reflex arc

What will the pupillary response be to shining a light in either eye if there is a lesion in the left oculomotor nerve?

Because both optic nerves and tracts and all the remainder of the afferent pathways are intact, regardless of which eye is getting the light, the right pupil will constrict, but because of the damaged left oculomotor

nerve, the left pupil will not constrict. However, since the left oculomotor nerve conducts the efferent

response to the left eye when light is shone in either the left or right eye, the left pupil will not constrict.

