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TOPIC: DISCUSS TWO EYE DEFECTS

MYOPIA(short-sightedness or near-sightedness)

This is that defect of vision due to which a person cannot see the distant objects clearly(though he can see the nearby objects clearly). The far point of an eye suffering from myopia is less than infinity. Such a person can see clearly only up to a distance of few meters(or even less).

This defect is caused;

1. Due to high converging power of eye-lens(because of its short focal length).

In an eye suffering from myopia,the ciliary muscles attached to the eye-lens do not relax sufficiently to make the eye-lens thinner to reduce its converging power. So,due to the greater converging power of the eye-lens in myopic eye, the image of a distant object is formed in front of the retina and hence the eye cannot see it clearly.

2. Due to eye ball being too long

In the eye suffering from myopia,the eye ball is too long due to which the retina is at a larger distance from the eye lens. This condition also results in the formation of the image of a distant object in front of the retina(even though the eye lens may have converging power). The parallel rays of light coming from the distant object O(at infinity) are converged to form an image in front of the retina due to which the eye can not see the distant object clearly.

The image is formed in front of the retina either due to high converging power of eye lens or due to eye ball being too long.

The far post of eye having myopia is at point F which is less than infinity. The rays of light coming from the person's far point F can just be focused by his eye on the retina. If it were at a far point of this eye,then the eye can see it clearly. This is done by putting a concave lens in front of the eye.

HYPERMETROPIA(long-sightedness it far sightedness).

This is that defect of vision due to which a person cannot see the nearby objects clearly(though he can see the distant objects clearly)

For example: A person having the defect cannot read a book clearly and comfortably though he can read the number of a distant bus clearly.

The best pint of a hypermetropic eye is more that 25cm away. Sudan a person has to hold the reading material at an arm's length,much beyond 25cm from the eye for comfortable reading.

This defect of eye is caused:

- Due to low converging power of eye lens(because of its large focal length). The ciliary muscles attached to the eye lens becomes weak and cannot make the eye lens thicker to increase its converging power. So,due to the low converging power of eye lens in an eye suffering from hypermetropia,the image of nearby object is formed behind the retina and hence the ye cannot see it clearly.
- Due to eye ball being too short.

In an eye suffering from hypermetropia, the eye ball is too short due to which the retina is at a smaller distance from the eye lens. This condition also results in the formation of the image of a

nearby object behind the retina.

The diverging rays of light coming from a nearby object O placed at the normal near point N are converged to form an image I behind the retina due to which the eye cannot see the nearby object clearly. The image is formed behind the retina either due to low converging power of eye lens or because of eye ball being too short.