





Frequently Asked Questions



1. What is a Refractive Error?

Refractive error is the change in the eye that prevents light/ image from being brought to a single focus on the retina.

2. What are the different types of Refractive Errors in children?

Near-sightedness (myopia), Far-sightedness (hyperopia) and Astigmatism are the different types of Refractive Errors in children.

Near-sightedness

It is also called MYOPIA. Children who are 'Nearsighted' can see objects that are close to them clearly, but are unable to see clearly the objects that are far away from them. Nearsightedness is not very common in infants and toddlers, but is very common in schoolaged children. Eyeglasses help to clear the vision but do not "cure" the problem. Despite using glasses, near-sightedness will generally increase gradually until the child reaches the mid-teens. Hence a periodic follow-up examination by an eye doctor is recommended.

Farsightedness

It is also called HYPEROPIA or HYPERMETROPIA. In far-sightedness children cannot see distant and near objects clearly, more so near objects. But often they are able to see distant objects by straining their eyes and focusing on it. Some children are even able to see near objects by doing this. But this causes a lot of strain on the eyes.

4. Are refractive errors a disease? Is it a major defect?

NO! It is not a defect or disease of the eye. It is a natural variation in the length and size of the eye.

In a myope the eye is longer and larger as compared to someone without myopia. The structures within the eye are the same as in a normal sized eye. However if the eye is very large it may lead to some changes in the retina. In such cases, it is important to get regular check-ups done and to follow the doctor's instructions.



In a hyperope the eye is shorter and smaller as compared to normal. The structures within the eye are same as in a normal sized eye.



5. What is the cause of Myopia in children?

The exact cause of Myopia is not known, but it may be because of the heredity and environmental factors.

6. Who can have myopia? What are the possible factors responsible?

Anybody can develop myopia. But it tends to run in families. When both parents are nearsighted, their children have a greater than average chance of developing it. Environmental factors such as reading in dim light or doing excessive amount of nearsighted work like watching TV especially from near distances, excessive use of mobiles and tablets may contribute to the problem.

7. What are the signs and symptoms of Myopia in children?

Symptoms of myopia are usually noticed in childhood. Myopic children may hold their books very close to their face or be unable to read the blackboard at school. They may complain of headaches and eyestrain. These signs often alert a teacher or parents that the child is having vision problems and that an eye examination is needed.

8. How can Myopia be prevented?

There is no way to prevent Myopia. Just like there is no control of the final height of a person, the length of your eyes is also not under your control! If the final length of the eye is larger than average then you will have myopia.

9. What precautions should be taken to control myopia?

Yes some precautions can be taken and this may control myopia a little! Various experiments have shown that the progression of the myopia is reduced or slowed down by these steps:

- Avoid excessive screen time less than 1.5 hours/ day (Screen time includes TV, mobile, tablets, Ipads)
- Avoid watching TV very closely
- Increase outdoor activities (active time) to the maximum limit
- Do your homework under good light



In today's competitive world there is plenty of reading work, which in fact is a form of near activity which is unavoidable. Hence it is of utmost importance

to avoid further excessive near work in the form of smartphones and Ipads. Screen time v/s active time is a big challenge and it cannot be imposed on your child. Parents have to be role models and strike a balance between the two.

11. Who gets hypermetropia?

Most babies are born far-sighted. As the eyeball lengthens with growth, the farsightedness decreases until normal vision is achieved. That is why young children are diagnosed as 'Hyperopia appropriate for age'. In some children there may be very high hyperopia, here the eye length is very small and is called nanophthalmos or microphthalmos. In this condition there may be some complications in future life, hence the doctor's instructions should be followed in such cases.

12. What are the symptoms of Farsightedness? With mild Hyperopia, there may be no symptoms. The child is able to accommodate for the far-sightedness without much effort, and is comfortable.

The greater the degree of farsightedness, the more the strain required to accommodate. Some of the most common symptoms are:

- Blurred vision of close objects
- Eye strain

- Aching eyes and brows
- Headache while reading
- Crossed eyes (Strabismus) in children

13. How long does Hyperopia last?

Far-sightedness tends to reduce throughout childhood as the eyeball lengthens. It may disappear by adolescence in many children. (if the hyperopia is low).

14. What is astigmatism?

Astigmatism is the result of an eye that has an irregular corneal shape. It appears that the cornea is always circular in shape but this is not the case always. In some the cornea may be oval in shape – either vertical or horizontal! This irregularity or asymmetry is so small that it cannot be appreciated by the naked eye and is determined only after some tests.





ASTIGMATISM

Astigmatism may lead to blurred vision. Irregularities in the curve of the cornea or lens make the vision clearer in some cases. This asymmetry of vision is called Astigmatism. In children with astigmatism usually the cornea is vertically oval.

15. Who gets Astigmatism?

Throughout childhood as the eyeball lengthens, far-sightedness tends to decrease. In cases of low hyperopia, it might disappear by adolescence in many children.

16. What are the symptoms of astigmatism?

Astigmatism happens in eyes that have irregular corneal shape. It is believed that the cornea is always circular in shape, but so is not the case. In some, the shape of the cornea may be oval - either vertical or horizontal. This irregularity or asymmetry is so mild, that it cannot be appreciated by the naked eye and is determined only after performing certain specific tests.

17. How is refractive error diagnosed?

A diagnosis of refractive error can be made only after a basic eye examination is performed by an ophthalmologist or an optometrist. The initial diagnosis of refractive error is usually made subjectively by having the patient read letters

from an eye chart. When the child is very small or cannot do the tests themselves for some reason we can objectively measure the refractive error with retinoscopy.





18. What are the treatment options available for Myopia, hyperopia and astigmatism?

The most common and important treatment for nearsightedness is wearing eye glasses. Contact lenses can be used once the child is old enough to wear/remove and take care of the lenses by him/herself.

Myopia often increases progressively during adolescence. However, Myopia tends to stabilize after the age of twenty in most cases.

Hyperopia on the other hand tends to decrease as the child's eye grows with age.

Astigmatism on the other hand may not follow a set trend of increase or decrease with age and time, however it can definitely change – increase or decrease.

The eyeglass or contact lens prescription may need to be adjusted periodically in all the refractive errors; hence a regular follow up as per instructions is necessary.

A number of laser/surgical procedures are used to correct Refractive Errors. However, these are not recommended for children under the age of 18-20 years because their eyes are still growing upto this age.

19. How is the glass power measured?

The glasses are prescribed by your ophthalmologist or optometrist after carefully checking and rechecking the amount of refractive error both subjectively and objectively. The objective testing by retinoscopy is done twice, once before putting eye drops to relax the focusing muscles and again after the effect of the eye drops is obtained. In very small and uncooperative kids only objective testing is possible but you should not be worried about its accuracy since this is done by professionals with years of experience.



Also it should be kept in mind that the eye drops which are used to accurately measure the power of the eyes will cause a little blurring of vision for some hours after which it will be back to normal, so do not be scared.

On rare occasions we may need to use stronger drops to get the most accurate glass power. These eye drops are called Atropine eye drops. There is a specfic method in which these drops are to be put in the child's eyes and will be explained in detail by your doctor / optometrist before prescribing them to you. While putting the drops the puncta (small opening on the lower eyelid near the inner side of the lid) should be closed so that the drops are not absorbed into the body through this opening, some sensitive children may get fever and body rash if this happens. Again like other medicaions there will be a little blurring of vision after using these drops and this will last for some days. These drops are to be put 2 times a day for 3 days. On the fourth day the test has to be performed in the clinic.

20. What kind of glasses should you make?

There are a number of options available nowa-days. These options will be best explained by our optician. But you should keep in mind that no glass is scratch proof so your glasses should be handled with care.

21. Can carrots prevent/ reverse/ reduce refractive error?

This is an age old concept but sadly not true. Carrots have a high content of Vitamin A in them which is required for something called as dark adaptation and other chemical processes in the eye. But it has no impact on reducing the glass power.



However, good nutrition is always good for any child for adequate overall development and for building up natural immunity against the ill effects of pollution and infections. A child's plate should be colorful and should contain all colors of vegetables and fruits.



22. Can the power of glasses caused by refractive error wear off on its own?

The power may have fluctuations and may reduce. Very rarely it may wear off on its own unless the child has a small amount of hyperopia which tends to reduce with age. The power changes and so regular check-up is recommended.

23. Can any drug help in removing the refractive error?

There is no drug available to prevent or get rid of the powered glasses, so do not waste money on frauds who say that they can make you free of your powered glasses with drugs. Drugs may harm the child due to their various side effects. (*To reduce the rapid progression of very high myopia, a new medication in the form of eye drops is available in our country but it should be used only if your eye doctor prescribes it).

24. Is surgery an option for a child?

Surgery at childhood is not a good option because the child and the eye are in the growing phase and the power of the eye lens may fluctuate during this period. The power may further increase or decrease and this may result in a change in the type of the refractive error.

25. How long will it take to get the power of glasses to become stable?

Normally by the age of 18-21 years the power becomes stable but in a few exceptional cases

the power may increase even after 21 years of age. Nothing actually can be done for that except that the patient needs to have regular follow-up and should wear the appropriate correction. The idea is to give the child the best possible vision, hence if a change of glasses is needed and advised by your doctor then it should be done without too much delay.

26. Another common question – Will the refractive error vanish if my child wears glasses regularly?

It's a myth – wearing or not wearing glasses does not alter the refractive error – but wearing glasses when advised by your doctor is very important to avoid eye strain, have the eye grow normally and to prevent 'lazy eyes' or amblyopia.



With Refractive Error



With Glasses / Correction of Refractive Error





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