

How do we tackle a child's spectacle?

Refractive error is one of the most important causes of visual impairment in children. Uncorrected refractive errors can lead to a myriad of ocular disorders such as amblyopia and strabismus. A successful treatment of refractive error not only wards off the risk of development of these disorders but also ensures a normal development of binocularity and stereopsis. The most common treatment modality of refractive correction in children involves the use of spectacles and to some extent contact lenses.

Spectacle correction is a simple and cost-effective method to ward off the refractive errors. However, unlike in adults, it is not straightforward and to achieve a satisfactory correction in children, the ophthalmologist should consider an individualized approach. A number of guidelines have been published to aid the ophthalmologists to prescribe spectacles for children. The most notable ones include the ones by the American Academy of Ophthalmology, Royal College of Ophthalmology, and American Association for Paediatric Ophthalmology and Strabismus. More recently, All India Ophthalmologic Society (AIOS) Guidelines were released at the AIOC, Coimbatore, based on the deliberations of the group of Pediatric Ophthalmologists and Strabismologists of our country [Table 1].^[1] In this issue, Monga and Dave^[2] have published the results of their online survey done to understand the perspective of Indian ophthalmologists toward spectacle prescription in children. They have found a wide disparity in the pattern of pediatric spectacle prescription among the responders. Standardized guidelines from AIOS can help close this gap by creating awareness among Indian ophthalmologists regarding the topic.

The important factors that need to be considered while prescribing glasses include the child's age, type and magnitude of refractive error, amount of anisometropia, and presence of strabismus or amblyopia. Another important factor to be considered is emmetropization which is an active and ongoing process in children.

Most infants have been found to be hyperopic, the average magnitude of cycloplegic refractive error being +2 diopters.^[3] There occurs a process of fast emmetropization from age 3

to 12 months.^[4] This period of fast change is followed by a period of slow emmetropization, which is up to 2 years for hyperopes and 5 years for myopes.^[5] However, the process of emmetropization also depends on the initial refractive error. Higher the initial refractive errors, less are the chances of achieving complete emmetropization.^[6] Another factor that should be taken into account is the amount of anisometropia which occurs due to the difference in the rate of emmetropization between the two eyes. Smaller amounts of anisometropia are known to resolve by age, but the ones >3 diopters are known to be permanent and associated with risk of amblyopia.^[7] The process of emmetropization is usually complete by 6 years of age.

The type and magnitude of refractive error should be given due consideration while prescribing glasses. Care must be taken to consider the normal amount of refractive error corresponding to the particular age. The infant's world is confined to the near objects. As a result, uncorrected hyperopia is more detrimental than myopia in case of infants. However, very high levels of myopia are also associated with amblyopia. If amblyopia is demonstrated at visual assessment, its treatment must be initiated after giving a spectacle and ensuring compliance. As the child grows, the distance vision becomes equally important. Hence, the age and magnitude of refractive error become an important consideration while prescribing spectacles. In case of patients with esotropia, it is imperative to give full cycloplegic correction.

While correcting for hyperopia in children <6 years, it has been advised to undercorrect the refractive error, the residual refractive error being just above the mean for that age group. This is done to ensure the stimulus for emmetropization except in conditions such as amblyopia and esotropia. In case of school-going children, myopia should be fully corrected; hyperopic errors more than 1.5 diopters should be corrected as well. However, in cases of asthenopia, esotropia, or amblyopia, the smaller hyperopic errors deserve attention as well.

Last but not least, the compliance to the spectacle is as important as a good prescription. This can be improved by the use of frames of proper fit and use of restraints such as a headband in case of younger children. The spectacles should cover the eyes completely to avoid peeking over the glasses. In cases of bifocals being prescribed for accommodative convergence excess esotropia, the bifocal segment should bisect the pupil to ensure the use of near add for near tasks. A good refractive correction can bring about a remarkable change in the way a child perceives his surroundings keeping deleterious effects such as amblyopia and strabismus at bay. It ensures a good binocular function as well as stereopsis.

Table 1: All India Ophthalmological Society guidelines for the prescription of glasses in infants and young children

Condition	Refractive errors (D)		
	<1 year	1-2 years	2-3 years
Isometropia			
Myopia	≥ -3 D	≥ -3 D	Whatever
Hyperopia (no manifest deviation)	≥ +4	≥ +4	≥ +4
Hyperopia with esotropia	≥ +1.5	≥ +1.5	≥ +1.5
Astigmatism	≥ 3 D	≥ 2 D	≥ 2 D
Anisometropia (without strabismus)			
Myopia	≥ -3 D	≥ -3 D	Whatever
Hyperopia	≥ +1.5 D	≥ +1.5 D	≥ +1.5
Astigmatism	≥ 2.5 D	≥ 2 D	≥ 2 D

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