

A Scoping Literature Review on Effects of Eye Exercises for Myopia in Children

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Abstract

The scoping review on eye exercise for myopia in children was aimed to provide an evidence-informed overview to highlight the role of exercises for myopia in children. This helps in the treatment of myopia and to improve the visual health in easy and better way. More high quality research articles are needed to prove the effort of exercise on myopia in children.

Keywords: Pediatric Myopia; Pediatric Visual Rehabilitation; Oculomotor Rehabilitation.

Introduction

Myopia is the commonest type of refractive error in eye where the light from infinity will focus in front of retina rather than focusing on the retina leads to blurring of image. Myopia is derived from Greek word *muópiá* which means “trying to see like a blot”, and also called as shortsightedness. Shiny et al [1] described the eye with myopia as “one for which the punctum remotum is a short distance off, sometimes only a little inches from the eye”, and also says myopia is “one in which the images focus in front of the retina while eye at rest”.

The preponderance of shortsightedness varies by country and by indigenous assortment, reaching as high as 70-90% in some Asian populations [2]. Near epidemic levels of myopia of up to 80% have been reported in countries such as Hong Kong, Taiwan, Singapore and Japan [3-5]. In Europe and America, its preponderance varies between 30-40%, while in Africa 10-20% of the population is affected. Shortsightedness affects 25% of the population in United States. The prevalence of myopia in India is

45% [6-8]. Available treatment option for myopia are optical correction, pharmaceutical treatment like cycloplegic promoters, vision therapy, orthokeratology, refractive surgeries like (radial keratotomy, excimer laser photorefractive keratectomy), osteopathy, yoga therapy and aerobic exercise therapy [9]. These treatment choices have many problems like post-operative complication, cosmetic problem, eye infection, the daily use of spectacles may limits their daily activities such play, dance, and even other activities specially in children. The simple eye exercise will be more beneficial for the treatment of myopia in children

Exercise therapy for eye is not a new approach. In fact, vision workout and treatment approach have been around for years. The designs of these treatment or eye exercises aids in conquer different visual disorders including binocular function. Not all the treatment methods have been proven effective by exercises. In this study we explored the research articles from the pubmed and Cochrane library for eye exercises and myopia in children and all available articles selected for review.

Exercises and Myopia

Samia [10] have done a randomized clinical trial on myopia with 15 female aged between 12 to 15 years in Saudi Arabia and the results of the study showed that there is improvement in visual acuity in subjects with myopia. These results suggest that clinicians should consider the use of eye exercises as a way of improving visual acuity for adolescents suffering from myopia.

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Rathod et al [11] performed research work on myopia in thirty subjects, age ranging between 18-25 years. Subjects were randomly assigned in to two group that is Group A (Experimental Group) and Group B (Control group). Group A received Eye focusing exercises 10 repetition 3 sets daily for 4 weeks with standard care and the control group does not received any exercises except standard care for myopia for 4 weeks. The results show that, the eye exercises are effective in improving near point convergence in myopia but the improvement of visual acurity was not statistically significant

Gosewade et al [12] have conducted a study on the effect of eye exercise techniques along with *kapalbharti pranayama* on Visual Reaction Time (VRT). 60 participants with an age group of 18–30 years were divided into two equal groups (study group and control group) containing 30 subjects (18 male and 12 female) each. VRT of all participants were taken prior to the study. Eight weeks of regular eye exercise techniques and *kapalbharti pranayama* was trained for the study-group subjects whereas the control-group subjects were not practiced any eye exercises techniques. After 8 weeks VRT was measured again. The result shows there was significant decrease in the VRT after intervention in study group and there were not any changes noticed in VRT of control group. They concluded that the simple eye exercises along with pranayama helps in improvement of visual reaction time.

Gopinathan et al [13] have performed a research and they were aimed to evaluate the role of eye exercises and Trataka Yoga Kriya on Ammetropia and Presbyopia. 66 patients were divided under two main groups with four sub groups of refractive error like shortsightedness, hyperopia, astigmatism, and presbyopia, respectively, (Group A – 32 patients, Group B – 34 patients) by random sampling method. Group A subjects were asked to perform eye exercises daily once for 3 weeks. Group B subjects were instucted to perform Trataka Yoga Kriya once at daily (either in morning or in evening) for 3 weeks. The prescribed eye exercises were Sunning, Eye wash, Palming, Candle light reading, Shifting and Swinging, Playing with ball, Vaporization and Cold pad. The subjects were observed for 1 month in order to see any adverse effects of the therapy. The study suggests that there was one line rectification in Snellen’s chart reading and concluded that a non-medicinal, inexpensive, relaxation approaches can rectify the quality of vision, by which it discursively review the betterment of the disease status.

Discussion

The available treatment option for myopia have many consequences like cosmetic problems, eye strain, asthenopic symptoms, post LASIK infection, postoperative infection, recurrence of refractive error etc. to overcome from these consequences the eye exercise can provide beneficial therapeutic effect for the treatment or prevention of the development of myopia without any consequences. Limitation of this review is lack of systemic review and lack of clinical trials.

Conclusion

In these literature reviews we found that how eye exercises are effective in the treatment of myopia. But there are only three cochrane and two pubmed indexed researches are published till date. The intension of this review is focused to emphasize the research for the treatment of myopia with exercise in future days. So that myopia can be treated in a better and easy way.

Conflict of Interest

Non declared

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