

Analysis and Research on the Body Function of Closing Eyes then Rolling them based on Biological Movement Function

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Abstract

The functions of the eyes include vision, spatial sense, thinking ability, discrimination ability and balance ability. Through the common movement of eyes such as closing the eyes then rolling them, will these functions be affected? In this paper, using the methods of literature, experiment, the questionnaire survey, etc., we use eye movement of closing eyes then rolling them for 5-10 minutes to improve the visual acuity by taking primary school students in a district of a city as the research object. The results show that the effect of closing eyes then rolling them on improving students' eyesight is obvious, which can improve students' vision, visual sensitivity and attention, and provide the basis and methods for the prevention and control of students' poor eyesight in the future.

Keywords

closing eyes; rolling eyes; vision; application; practice.

1. Introduction

The functions of eyes include vision, spatial sense, thinking ability, discrimination ability and balance ability. Usually, eye rolling after eye closing can make eye muscle movement, which is conducive to sufficient blood supply and recovery of eye fatigue. At the same time, the eye muscles are relaxed, which makes the eyes more attractive. Then each part of the eye can rest fully due to the rotation of the eyeball. The following research on the body function of closing eyes then rolling them mainly focuses on vision as the analysis object.

Poor eyesight is a common disease in primary and secondary school students in China, which is listed as one of the six kinds of major diseases of students. And students' bad habits of using eyes in the learning process, such as long-time use of eyes without rest, too close to the book when reading and writing, and lack of time and frequency of physical exercise will also increase the risk of poor eyesight. Australian studies also found that students' myopia was significantly associated with close reading and continuous reading [2]. As we all know that juvenile myopia is a progressive, cumulative and irreversible process. There are significant differences in pinhole visual acuity and axial length between poor and normal vision students after 10 years old. In primary school, when the body is growing rapidly, vision has great plasticity during this period. Therefore, it is very important to control the development of pupils' poor eyesight. In the process of rolling the eyes after closing them, the two eyes must be closed, then the eyes should be rolled up-down and left-right, and the route of rotation and the point of drop need to be changed. The characteristics of the project can be used to improve students' eyesight and provide the basis and methods for the prevention and control of poor eyesight of students in the future.

2. Content Design

Medical research has confirmed that the primary school students have poor eyesight for lacking physical exercise and long-term use of eyes. The first method of eye rotation came from eye doctor William Bates's "taking off glasses for perfect vision" one hundred years ago. He believed that tight extraocular muscles were the cause of ametropia, so relaxing extraocular muscles can improve vision. Recent studies have also found that regular rolling of eyes can accelerate the high-speed movement of the eyeball in all directions, also enhance the blood circulation of the eyeball, and is a very effective exercise for the ability of ciliary muscles to relax and contract. Therefore, it can eliminate or reduce the fatigue of eyes and prevent myopia. Although it has been said that eye rolling with closed eyes can improve vision, there are few researches on its content and practical application. Based on this, according to the actual situation of the fourth grade primary school students in this district, the author determined the prescription content and visual acuity evaluation scheme from the content, time and intensity of the eye movement, so as to provide the original data for checking the exercise effect of the prescription of rolling eyes after closing them, so as to test the effects on visual flexibility and visual response ability and attention training of primary school students.

3. Inclusion Criteria and Implementation Methods

According to the national test standard, the visual acuity of the left and right eyes of the two groups of students would be tested with the standard "E" visual acuity chart.

According to the standard, that is, the patients with uncorrected visual acuity > 5.0 are regarded as normal vision, and those less than 5.0 are regarded as poor vision. There was no significant difference between the experimental group and the control group in the visual acuity of left and right eyes ($P > 0.05$). In addition, under the premise of good health and no eye disease, students voluntarily participate and have the consent of their guardians. In order to test the effectiveness of the prescription of closing eyes and turning eyeballs on primary school students' eyesight, a class with no significant difference was divided into experimental group and control group. Among them, there are 30 people in the experimental group and 30 people in the control group. The experimental group used the prescription of rolling eyes after closing them during the break of primary school. The control group had free activities as usual during the recess of primary school.

4. Results and Analysis

4.1. Closing Eyes then Rolling them can Relieve Eye Fatigue and Improve Students' Vision

Closing the eyes then rolling them can relieve eye fatigue, and improve the ability of prevention and treatment of myopia. By rolling the eyes, the external radial muscle and the internal accommodation muscle group can be enhanced, and the ciliary muscle can be relaxed and contracted along with the movement of the eyeballs. At the same time, the high-speed operation of the eyeballs in all directions can enhance the blood circulation and the blood supply of them, and further enhance the tensile capacity, then prevent the growth of the eyeballs[4], so as to exercise the eyeball and relieve eye fatigue, which is an effective way to improve eyesight and eye exercise. Through the visual acuity test results before and after the experiment, we can see that the visual acuity of the left and right eyes in the experimental group has been significantly improved, while the visual acuity of the control group has been reduced in a small range, which shows that the effect of closing eyes then rolling them on improving students' visual acuity is obvious.

Table 1. Comparison of visual acuity test between experimental group and control group before experiment (m ± SD)

		Experimental group	Control group
Before	Right eye eyesight	4.68±0.14	4.67±0.2
	Left eye eyesight	4.64±0.1	4.65±0.12
After	Right eye eyesight	4.88±0.08	4.69±0.11
	Left eye eyesight	4.84±0.09	4.66±0.1

4.2. Rolling Eyes then Rolling them can Promote Students' Attention

In the practice of closing the eyes then rolling them, the exerciser must be highly concentrated. In primary school, students' attention is easy to shift. In order to promote the development of students' attention, this study mainly uses the following means. Firstly, we should determine the movement sequence and action of rolling eyes after closing them. And eyeball rotation can be divided into "eye shaking" and "eye rotation", which can be classified as "eye shaking" in a straight line up and down, left and right, and "O" type rotation. Students can take standing or sitting posture, with hands on the waist or on both sides of the body, and their heads and necks and bodies should not move. The training methods are as follows.

(1) Practicing the sight like the Chinese character "meter", what is, with the middle of the character "meter" as the base point, the eyes look from up to down, then from left to right, also from left up to right down, and from right up to left down.

(2) Practicing "O" shape turning, what is, the line of sight goes counter clockwise and clockwise respectively, and rolls the eyes to the extreme of the periphery as far as possible. With the help of the six muscles around the eye, the four rectus and two oblique muscles, can do a very good job of controlling the eye rotation, under the control of the oculomotor nerve, abducent nerve and the pulley nerve, so that both eyes can not only exercise in the same direction, but also exercise in different directions. It's an integral part of normal eye function. Secondly, the teachers use vivid and interesting ways to show the development of the story through the story plot design of rolling eyes, and extract the students to retell the story content according to the clues, so as to train the students' attention from the perspective of hearing. Thirdly, we could play a variety of eye movement videos, and through wonderful dynamic videos to attract students' attention. Finally, at the end of the term, through the test of attention, the results of the experimental group students before and after the experiment have improved significantly, which shows that the attention training by closing eyes and turning eyes is more effective.

5. Suggestions

5.1. In Primary School, Students' Eyesight is Very Important

Closing eyes then rolling them is a very effective way of eye exercise, which can effectively relieve or eliminate eye fatigue caused by long-term eye use. Therefore, it is suggested that the teaching content of eye movement should be properly set up in the primary school curriculum, and the practice should be carried out between classes.

5.2. Recommendation Mode and Frequency

When rolling the eyes, we would choose the four directions of the upper left, upper right, lower left and lower right. And the time would be 5-10 minutes each time, which can effectively improve the pain, swelling and other discomfort of the eyes.

In order to achieve the best effect of eye use and prevent myopia and other complications, we should use the method of closing eyes and turning eyes to relieve muscle tension every 40 minutes.

5.3. It can be Used as a Powerful Assistant for Eye Exercises

The old version of eye exercises is mainly based on acupoint massage of traditional Chinese medicine. It stresses that the acupoints should be accurate and the strength should be in place. However, it is difficult for children to master the acupoints. The "eye movement" without hands can relax muscles, relieve visual fatigue, and is easier to be operated by children. So the primary school may take eye exercises and rolling the eyes after closing them, in order to better improve the students' vision.

References

- [1] Feng Qi, Luo Jia, Zeng Rong, etc. Analysis on the Relationship between Poor vision and Environmental factors in Primary and middle school Students [J]. School health in China, 2014,35 (8) : 1127-1130.
- [2] PJM, SAWSM, ROSEKA, etal. Role of nearwork in myopia: finding sina sample of Australian schoolchildren. Ophthalmol VisSci, 2008,49 (7) : 2903-2910.
- [3] Onald O. Mutti, John R. Hayes, G. Lynn Mitchell, et al. Refractive Error, Axial Length, and RelativePeripheral Refractive Error before and after the Onset of Myopia [J]. Ophthalmol Vis Sci, 2007,48, (6) : 2510-2519.
- [4] Yin Huamin, Xu Xiufang, etc. Discussion on the Mechanism of Sports therapy to Prevent myopia in Adolescents [J]. Journal of mianyang economic and technical college, 2001,18 (2) : 76-78.