

HYGIENIC RECOMMENDATIONS FOR THE PREVENTION OF SCHOOL MYOPIA AND OTHER VISUAL IMPAIRMENTS IN CHILDREN OF PRIMARY SCHOOL AGE

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ANNOTATION

In childhood, especially during school years, myopia (myopia) is most common, which can be congenital and acquired. Features of the occurrence of congenital myopia lead to malformations of the eyeball, and if this is combined with weakness of the sclera, then it progresses. It is known that the number of myopic children is growing as students move from elementary to middle and senior classes. The number of myopic people especially increases, starting from 11-14 years. At the age of 19-25 years, the share of ee reaches 28.7% (Golovanova T.P. Organization of assistance to children with refractive errors in school conditions - Bulletin of Ophthalmology. - 2005. - No. 2. - P. 3-5).

Keywords: myopia, children of primary school age, educational process, children's educational institution.

Introduction

A number of scientists believe that the formation of myopia occurs mainly due to a violation of the resistance of the sclera of the eye. This leads to stretching of the sclera under the influence of intraocular pressure (Tugeeva E.E., Vorontsova T.N. Brzhesky V.V., Zaitseva M.V. Influence of the main parameters of the fibrous capsule on the results of various methods of tonometry in children Russian Pediatric Ophthalmology. - 2015, - T. 10. - N 2. - C. 38-40). Some believe that the weakening of the outer shell of the eye may be a manifestation of a general weakness of the supporting connective organism.

(Pyltsina N.Yu.: o relationship between the clinical course of myopia and the anatomical somatotype in children and adolescents: abstract of diss. cand. common diseases rickets, measles, scarlet fever, tonsillitis, rheumatism, infectious hepatitis, as well as a consequence of intrauterine delay in scleral compaction. It is known, for

example, that myopia in children who have had rickets occurs five times more often than in healthy children (Astakhov Yu.S. Potemkin V.V. 279)

A number of authors consider myopia as a consequence of the adaptation of the visual analyzer to work at close range. E.S. Avetisov believes that general diseases of the body, weakness of the supporting connective tissue and other factors that play a leading role in the origin of myopia only contribute to the fact that the cause (work at close range, poor accommodative ability) turns into a consequence (myopic refraction). Unfavorable hygienic conditions of visual work affect the origin of myopia only to the extent that they impede accommodation and encourage the eyes to be brought too close to the object of visual work. E.S. Avetisov conditionally divides myopia, according to the mechanism of its origin, into 3 groups:

Accommodative myopia. Weakening of accommodation can occur as a result of inferiority of the ciliary muscle, poor blood supply, insufficient training, and exposure to general diseases of the body. When accommodation is weakened, increased visual work at close range becomes an unbearable burden for the eyes. The organism is forced to change the optical system of the eyes in order to adapt it to working at close range without accommodation tension. This is achieved by lengthening the anteroposterior axis of the eye during its growth and the formation of refraction. With this form, myopia does not exceed 3.0 D.

Hereditary myopia can be inherited in an autosomal dominant or autosomal recessive manner. With a dominant type of inheritance, myopia occurs at a later age, proceeds favorably and does not reach a high degree. With a recessive type of inheritance - an earlier occurrence, a greater tendency to progression and complications, and a more severe course of the process in the next generation.

Scleral myopia. The weakening of the sclera can be congenital or occurs as a result of general diseases of the body and endocrine changes. By itself, intraocular pressure, even increased, in the absence of weakness, is not capable of causing eye strain. Dynamic intraocular pressure leads to elongation of the eye - the perturbation of the fluid of the eye when the body or head moves. Elongation of the eye adversely affects the state of the vascular and retinal membranes.

In children of primary school age, in most cases, the growth of myopia reaches only a weak or moderate degree, not more than 6.0 days. The development of myopia in children of primary school age is facilitated by frequent and prolonged visual work at a close distance from the eyes, which is accompanied by a large strain of accommodation and unfavorable hygienic conditions for visual work (poor lighting, improper fit, furniture mismatch with the height of the child, poor font, etc.) . (Khusanova N.F., 2019).

Compliance with elementary hygiene requirements is an important condition for maintaining normal vision in children of primary school age. And here, perhaps, in the first place should be put the creation of the correct lighting of places for work and activities of the child. The best type of lighting, of course, is daylight. Daylight is part of the radiant energy of the sun, consisting of a stream of electromagnetic waves propagating in space at a speed of 300 thousand kilometers per second.

In addition to high light qualities, sunlight has other valuable properties. It has a beneficial effect on physiological processes, increases metabolism, promotes better growth and development of the body. The growing organism of the child especially needs sunlight. Sunlight strengthens the child's body, improves his well-being and thereby increases the attention and performance of the child. Therefore, the use of daylight in the classrooms and playrooms of children's educational institutions should be maximized. To do this, do not put flowers and other tall plants on the windowsills. It is better to strengthen them on the railing along the flights of stairs, to take them out into the corridors.

It is very important to monitor the cleanliness of window panes - to prevent their contamination, as well as fogging and freezing. It is necessary to wash the glass at least twice a month, and so that the glass does not freeze in winter, some hygroscopic substance is placed between the window frames. It is absolutely unacceptable to cover window panes with paint.

The eyes of children and adolescents easily adapt to changing lighting conditions. However, frequent transitions from too bright light to weak light are very tiring for the eyes and should be avoided. Lighting should be uniform throughout the classroom. Light should fall on the child's workplace from the left to avoid the shadow from the right hand while writing. To protect the eyes from the direct glare of the sun's rays, it is recommended to use light-protective blinds and install them on the outside of the windows. You can also use sliding blinds made of light matter. It is advisable to orient play and study rooms in children's educational institutions to the south, southeast. (Shaykhova G.I. 2012).

The right choice when painting play and educational premises of their equipment improves the conditions for the visual work of children. The most favorable light colors (light yellow, light green). It is advisable to orient play and study rooms in children's educational institutions to the south, southeast. (Shaykhova G.I. 2012).

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The green color has the most favorable effect on visual functions. It reduces fatigue, reduces eye strain, promotes better rest for the eyes.

The strength of daylight is not constant. It depends on climatic conditions, cloudiness, time of year and other factors. To characterize daylight illumination, the

natural light coefficient (DR) and the light coefficient (LF) are used. (Kuchma A.A., 2010).

DR - a value that shows how many times the illumination inside the room is less than the illumination measured outside the building from the sky when direct sunlight is shielded. The minimum value of DR in the playrooms of the preschool educational institution should be 1.5% (at the level of 0.8m from the floor), and in the classrooms - 2.0% (according to the standards).

LF - the ratio of the glazed surface of windows (without frames and bindings) to the floor area. This ratio must be at least 1:4.

If daylight is not enough, do not be afraid to turn on artificial lighting in addition to natural lighting. The opinion that mixed lighting is harmful to vision is unfounded. The main thing is that the place of work of the child is correct and adequately lit.

Due to the lack of natural light in the autumn-winter period, one has to resort to artificial lighting. Artificial lighting is created with the help of lamps, that is, light sources (lamps) together with lighting fixtures. It can be general when the whole room is illuminated; local, when only a certain surface is illuminated and combined, when general lighting is combined with local.

In the classrooms, a general lighting system has been adopted using incandescent lamps or fluorescent lamps as light sources.

The blinding brightness of <<bare>>, unprotected lamps is harmful to eyesight. Therefore, it is necessary to enclose the lamps in appropriate lighting fittings so that the incandescent filament of the lamp does not shine through them and does not irritate the eyes. Of the luminaires with incandescent lamps, only 300 watt (W) lamps are the most rational.

The greatest visual comfort is created by fluorescent lamps. The emission spectrum of fluorescent lamps is closer to the spectrum of daylight: by combining phosphors, you can get light of any color. The large size of the luminous surface of these lamps allows you to create a much more uniform illumination than incandescent lamps. Their especially valuable quality is the possibility of enriching the light flux with biologically active ultraviolet radiation. This property is widely used for recreational purposes.

And finally, fluorescent lamps are more economical. With the same power consumption, they give 2-3 times more light than incandescent lamps, and the service life of the latter is 5 times shorter (only 1000 hours, while fluorescent lamps average 5000 hours).

To preserve the vision of children of primary school age, the following are important:

- Children of primary school age love to write in notebooks made of glossy paper. Meanwhile, writing on it, just like on thin, translucent paper, is tiring for the eyes. Paper for writing should be thick, matte, white or slightly yellowish in color. For writing, school pens with soft nibs should be used.

- The preservation of vision largely depends on the landing of children during classes. With good vision and with its full correction with glasses, the distance from the eyes to the object (books, notebooks) should be 30-35 cm. With such ratios, the conditions for vision are the most favorable. Very convenient and useful special stands for books. When used by them, the distance from the top and bottom lines of the text to the eyes is evened out, eye strain is reduced, and they get less tired. Reading lying down contributes to visual impairment, since it is difficult to maintain the optimal distance from the eyes to the book (Kuchma).

Any work, including reading and looking at pictures, requires a large expenditure of energy, which is compensated by an increased influx of nutrients from the blood to the working organ - the eye. When reading lying down, the head is usually thrown back or tilted. As a result, blood flow to it increases. This can lead to the development of fatigue, headaches, decreased vision and other consequences. It is also impossible to read while eating, in a moving vehicle.

When visiting a child at home, and in individual conversations with parents, attention should be paid to the need to provide the child with a permanent comfortable place to study - a desk and a chair (SanPiN. 2009).

Tab.1 The main sizes of tables and chairs for children of primary school age

Children's height group, cm	Marking of tables and chairs	Height above the floor of the table edge (cm)	Seat Edge Height (cm)	Table and chair labeling
110-115	A	46	26	yellow
116-130	A	52	30	yellow
131-145	B	58	34	red
146-160	V	64	38	blue
161-175	G	70	42	green
Over 175	D	75	46	white

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The correct daily routine plays an important role in maintaining the vision of a child of primary school age. A hectic lifestyle, systematic lack of sleep, abuse of television programs adversely affects health, and, consequently, vision. It is necessary to be

able to allocate time in such a way that work alternates with rest, that sleep is deep enough, and nutrition is full and regular. Physical exercise is very beneficial for vision. They maintain health, improve the activity of the heart and lungs, develop muscles, increase metabolism, and contribute to the development of good posture. The choice of exercises depends on the state of health and vision. With high myopia and glaucoma, you should not perform exercises associated with turning the head, and sudden movements are not recommended. Prolonged reading, writing and other work related to vision are accompanied by severe eye strain, and a monotonous posture leads to general fatigue and stagnation of blood in the abdominal cavity and pelvic organs. Any work, including visual work, requires rest. The best rest is active, in motion. Several gymnastic exercises - pulling up, tilting the body, squatting and even walking around the room quickly relieve fatigue, give rest to the eyes, and restore working capacity. (Kuchma)

With the progression of myopia, it is necessary that for every 20-25 minutes of visual work there should be at least 5 minutes of rest. With myopia over 6.0 D, continuous visual work should not exceed 15 minutes, and the rest time should be increased to 10 minutes.

Fresh air is especially useful for vision. Walking in the fresh air, running, playing ball, contribute to a better blood supply to the eyes and a constant flow of blood enriched with oxygen to them.

The most complete rest is sleep. During sleep, all organs and tissues of the body rest, and the eyes also rest.

Frequent and prolonged viewing of television programs causes additional visual fatigue, especially if you watch them in the dark. Too much contrast between a bright image on the screen and the surrounding background is harmful to vision. To smooth the transition from a brightly lit screen to a dark background surrounding it, it is necessary to illuminate the room while watching television, but so that the light source (lamp) does not enter the eyes and is not reflected on the TV screen. To do this, it is good to use a floor lamp, sconce or table lamp. They are placed behind the viewers. And one more indispensable condition - you can not watch television programs at a distance closer than 2-3 m from the screen. Regular and nutritious nutrition is essential for maintaining vision. For the normal functioning of the body, it is necessary that the food contains a sufficient amount of proteins, fats, carbohydrates, minerals, vitamins. Vitamin A is especially necessary for vision. The absence or lack of it in food leads to xerophthalmia eye disease, in which photophobia and dry eyes are observed. This disease is dangerous because it can lead to blindness. Another disease with avitaminosis A is hemeralopia, or "night blindness". Vitamin A contributes to the restoration of visual pigment.

In addition to matching the furniture to the growth of children, the condition of their vision should be taken into account. Children with reduced visual acuity

should sit at the first tables closer to natural light sources. With good correction of visual acuity with glasses, it is recommended to sit at any table.

Thus, the teacher must ensure that children who wear glasses use them during class, so that they do not wear someone else's glasses, do not wear faulty, broken lenses or broken frames. It is necessary to explain to students the benefits of wearing glasses to prevent further deterioration of vision and teach them how to handle them carefully. Before involving children in socially useful work, it is necessary to consult a doctor and identify children for whom certain work is contraindicated. They are also not recommended for work that requires staying in a bent position with the head tilted down. To maintain good vision, it is necessary to protect it from damage and disease.

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