

Prevention of aging of vision and the human body
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The urgency of the problem

For thousands of years, scientists have been struggling to find a means that could quickly and effectively save humanity not only from diseases, but also slow down the aging of the body.

The only organ of the human body, the development of which never stops, and the aging process begins even before birth, is the lens of the eye. Throughout a person's life, there is a constant renewal of the fibers of the lens due to the epithelial cells of the anterior bag. The renewal process is accompanied by the compaction of the central fibers of the lens, which leads to the gradual formation of a compact nucleus, the physiological process of its hardening and a decrease in the volume of accommodation. So, if with normal visual acuity in the distance in persons aged 20 years the volume of accommodation is 10.0-12.0 diopters (diopters), then at the age of 35 years - 4.0, at 40 years - 2.0, at 50 years - 1.0, and at 60 years old - 0 diopters.

Consequently, already at the age of 35–40 years, the nearest point of clear vision moves further from the eyes and vision at close range deteriorates. This indicates the onset of the aging process of the so-called "senile vision - presbyopia" (from the Greek "presbus" - old man, "ops" - sight). Therefore, when performing minor visual work (reading, writing, sewing, etc.), a person is forced to move objects as far as possible from the eyes.

In the process of intense visual work at a close distance, there is a feeling of discomfort not only from the organ of vision, but also from the general condition of the body - this is visual and general fatigue, headaches, pain in the region of the orbits, eyebrows or temples, lacrimation, cramps, dryness in eyes, fog or veil in front of the eyes.

When working with a computer for many hours, the so-called "computer syndrome" (CVS) develops, which can be one of the causes of premature aging of vision and even the body. The characteristic signs of the syndrome are blurred vision, double vision, redness of the eyes, decreased vision both far and near, the development of myopia or farsightedness and their progression. At the same time, symptoms and syndromes of psychosomatic disorders are observed, including depression, which contribute to the premature aging of the body.

According to the generally accepted concept, aging of vision (presbyopia) is associated with a violation of the accommodative function of the lens. Until now, there have been no methods of preventing the aging of vision. To improve visual acuity during visual work at a close distance, corrective glasses for near are used according to the age of the presbyop with emmetropic (commensurate) refraction.

However, in most people, the aging process progresses rapidly, and visual acuity worsens not only near, but also in the distance, which leads to frequent replacement of optical glasses with stronger ones, not only for near, but also for the distance.

Recently, ophthalmic surgeons offer presbyopes of a relatively young age (from 40 years old) instead of glasses correcting vision, surgical removal of the transparent lens, followed by its replacement with an artificial lens. However, such a surgical intervention is often fraught with complications, and also leads to a deterioration in vision, especially when visual work at close range.

Thus, the urgent problem is the search for a non-invasive method for the prevention and treatment of premature aging of not only vision, but also the body.

The aim of the work was to study the possibility of color therapy in the prevention of aging of the eyes and the human body.

To achieve the goal, the following tasks were set:

1. To examine the visual acuity in the distance and near, as well as the psychosomatic state of health in patients 35–65 years old.
2. Assess the functional state of the retinal macula during its interaction with

spectrum of visible light.

3. To evaluate the effectiveness of color therapy in the prevention of aging of the eyes and the human body.

Material and methods

The study included 96 patients (192 eyes) with presbyopia aged 35 to 65 years. By age, patients were distributed as follows: from 35 to 40 years old - 12 people (24 eyes), 41–45 years old - 12 (24 eyes), 46–50 years old - 26 (52 eyes), 51–55 years old - 26 (52 eyes), 56–60 years old - 10 (20 eyes) and 61–65 years old - 10 people (20 eyes). Men - 34, women - 62.

For the treatment of patients, the method of color correction was used [1] using the Teterina apparatus "ATsT-02", which is a pair of glasses that generate light pulses of a given color, duration and frequency of the wave period [2]. The wavelength range of light signals was from 440 to 650 nm. The choice of the method of treatment was carried out depending on the nature of the disease of the organism.

Results and its discussion

For clarity of the results obtained, we present a table of indicators of distance and near visual acuity without correction before and after color therapy, depending on the age of the patients.

table

Dynamics of visual acuity without correction in presbyopes before and after color therapy

Age (years)	Qty patient tov	Qty eye	Visual acuity			
			into the distance		near	
			Before treatment	After treatment	Before treatment	After treatment
35-40	12	24	1.0	1.0	0.5	0.97
41-45	12	24	1.0	1.0	0.35	0.74
46-50	26	52	0.96	1.0	0.3	0.67
51-55	26	52	0.87	0.96	0.2	0.6
56-60	ten	twenty	0.55	0.91	0.15	0.6
61-65	ten	twenty	0.48	0.91	0.13	0,4
Total	96	192	0.64	0.96	0.1	0.66

The table shows that in patients aged 35 to 40 years with a distance visual acuity equal to 1.0, and normal (emmetropic) refraction of the eye, near vision is reduced by 50% and is 0.5 instead of 1.0. Already at this age, they have asthenopic complaints associated with excessive fatigue during visual work near, especially with a computer.

In patients from 41 to 50 years old, the near visual acuity decreases by 70%, although the distance still retains a high visual acuity equal to 1.0–0.96.

Near visual acuity in patients over 50 years old decreases by 84% and averages only 0.16, which requires correction of vision with positive glasses in the range of (+) 2.0 - (+) 2.5 diopters for the age of 51–55 years and (+) 3.0 - (+) 3.5 diopters for the age of 60–65 years. At the same age, there is a decrease in visual acuity in the distance on average by 50%, but with glasses of (+) 1.0 diopters, vision is corrected to normal values equal to 1.0. In the study of the functional state of the macula and the periphery of the retina by the method of mirror feedback [3], it was found that in most patients their response to color stimuli is either not manifested or very weakly expressed. Along with this, signs of a violation of the function of photosynthesis in the macula were revealed when it interacts with the spectrum of visible light.

In all age groups, syndromes of systemic psychosomatic pathology were observed with the involvement of many functional systems of the body (central nervous system, ANS, CVS, endocrine, immune and other systems) in the process.

After color therapy, distance visual acuity without correction returned to normal in patients aged 50 to 65 years, and near visual acuity at the age of 35 to 50 years, and significantly improved at the age of over 50 years.

Distance visual acuity before treatment averaged 0.64, after treatment - 0.96, and near, respectively - 0.1 and 0.66. The majority of patients (52.1%), especially those aged 35 to 55 years, did not need spectacle vision correction during visual work at close range.

Consequently, in 100% of patients of different age groups, normalization or significant improvement of visual functions was achieved with vision both far and near, which was due to an improvement in the functional state of the retina, as well as the visual neurons of the brain. At the same time, patients personally observed the feedback of the retina and the brain - these are the phenomena of pulsation of the diaphragm field of vision in response to color stimuli, phenomena of absorption, emission and reflection of the spectrum by structures of the macula and its autonomous pulsation in response to rhythmic effects of color stimuli, and regardless of pulsation diaphragm field of view.

Along with the improvement of the visual functions of the patients, there was an improvement in the general psychosomatic state. This was evidenced by the normalization of blood pressure and the improvement of the functions of the endocrine, digestive, genitourinary, immune and other systems of the body. The rejuvenating effect of color therapy was also noted.

Thus, the method developed by the author for the prevention of aging of vision and the body, as well as a wide range of diseases, with the help of a device for color therapy, provides both the prevention of aging of the body and the correction of human health.

The newest technology of color therapy is based on 5 basic principles of "similarity": 1) the use of the natural spectrum of visible light - naturotherapy;
2) the impact of rhythmically pulsating light on the regulatory structures of the brain through visual analyzer;
3) gentle, specific for the diseased organ, threshold color stimulation of neurons visual system and brain;
4) biofeedback, manifested in a mirror image of the response in the form of pulsation of the retina in response to the action of rhythmically pulsating light through the visual analyzer.

5) visual observation of the spatial structure of the retinal macula and phenomena photosynthesis: the processes of absorption, emission and reflection of light when exposed to the medium-wave and short-wave spectrum of visible light (entoptic phenomenon by TP Teterina).

These principles of color therapy ensure the activation of neurons in the cortex and subcortical structures of the brain (hypothalamus, pituitary, pineal gland, etc.), improving the mechanisms of adaptation of the body to the conditions of the external and internal environment and normalizing the biorhythms of the brain and the body as a whole. In addition, the author's phenomenon (mirror image of the macular response) provides information about the state of macular photosynthesis, which is important for the diagnosis of its pathology (macular degeneration, etc.) and dynamics in the process of color therapy.

Conclusions:

1. It has been found that one of the first signs of premature aging of the body is a decrease in vision during visual work near (presbyopia) in persons with normal distance vision, starting from the age of 35-40 years.

2. The main cause of premature aging, both vision and the body, as well as its progression is a violation of the energetic function of photosynthesis of the macula of the retina and neurons of the brain when they interact with the spectrum of visible light.

3. One of the tests of impaired photoenergetic function of the eye and brain are indicators the phenomenon of mirroring the processes of photosynthesis (absorption, emission and reflection of light) by structures of the macula when interacting with the short-wave and medium-wave parts of the spectrum of visible light.

4. Dysfunctions of the photoenergetic system of the eye and brain are one of the reasons development of systemic psychosomatic disorders at all levels of the body.

5. The decrease in the function of the accommodative apparatus of the eye in presbyopia is secondary, and not primary character in the etiology of both physiological and premature aging of vision (presbyopia).

6. Color therapy through the visual analyzer according to the method of TP. Teterinum has a high effectiveness in the prevention of both natural physiological and premature aging of vision and the body as a whole, as well as a rejuvenating effect.

Literature

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