

The State of Health of Students of Physical Education Specialties with Systematic Available Loads

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Asthenia is a very socially significant pathology for modern Russian youth studying at universities. Its treatment is traditionally based on prevention and systematic recovery, including the use of physical activity. It is based on regular muscle activation, mood elevation and distraction from negative moments in life. Physical education classes bring a person, especially a young age, a lot of positive emotions, provide him with emotionally-colored contact with his peers. The health improvement of young men with asthenia by means of physical culture is largely based on the stimulating effect on their body of regular muscle loads that activate the endocrine glands, immunity and blood circulation. Elimination of asthenia in young people is an important basis for the prevention of the development of diseases of internal organs in her. For a highly effective treatment of asthenia, physical activity should be supplemented with a rational diet with a high content of protein products, potassium and vitamins.

Keywords: Adolescence; Asthenia; Health; Muscle activity; Physical activity.

The state of asthenia is often recorded in adolescents studying at universities^{1,2}. Researchers define asthenia as the most common negative state of the young and adult population, very dangerous in terms of its complications³. Often, asthenia can be a consequence of some disease, and then it is secondary⁴.

The presence of asthenia creates a load on the heart, which results in metabolic disorders in this organ⁵. In the heart, hypotrophy of all parts of the heart develops, then muscular dystrophy develops in it, threatened by the appearance of heart failure^{6,7}. Disturbances of blood circulation in organs that also occur during asthenia further

aggravate the clinical picture and worsen the near and distant prognosis^{8,9}.

One of the most effective options for health improvement in asthenia is considered to be regular health-improving physical culture, designed to restore a person's strength, spent as a result of labor or study¹⁰.

It is of great interest to continue to clarify the possibility of health improvement in asthenia with the help of physical culture among students studying at the university¹¹.

Purpose: to consider the possibilities of health-improving physical culture in terms of overcoming asthenia among university students.

MATERIALS AND METHODS

The material for this study was the sources of information contained in the open press. The research methods in this work were the methods of analysis and synthesis, induction and deduction and the method of mathematical processing using standard statistical programs.

RESULTS AND DISCUSSION

Main factors in the development of asthenia

It is recognized that the etiology and pathogenesis of asthenia are closely related to physically stressed and emotionally stressed situations. There is an assumption that asthenia occurs more often in persons with an easily excitable psyche¹².

The existence of a connection between psychoemotional states and the nature of pathological processes suggests that the mechanisms manifested in response to negative emotional reactions and pronounced physical activity can accelerate the development of diseases to which a person is predisposed¹³. Anxiety and frustration are very common psychoemotional states in a person with asthenia¹⁴.

Anxiety arises at any unmet need of a person. Anxiety is often defined as the experience of emotional discomfort associated with the expectation of trouble, with a presentiment of impending danger¹⁵.

The problem of anxiety is most acute in youth psychology, since the consolidation of anxiety as a personality trait leads to many diseases,

including pathology of the heart and blood vessels. A similar negative effect on the body in asthenia is exerted by another negative psychoemotional state - frustration. This is a mental state of acute experience of failure that occurs when there are real or, more often, imaginary insurmountable obstacles on the way to a certain goal^{16,17}.

Asthenia is characterized by the presence of negative experiences associated with the current situation or with events that have already occurred¹⁸. The most common reaction to asthenia is the onset of a depressive state¹⁹. The development of asthenia can leave an imprint on the whole life and health of a young person, since it is a consequence of the weakness of the body's reaction in the course of its adaptation to the environment²⁰.

The long course of asthenia also affects human behavior, developing a whole complex of protective mechanisms in him. Usually patients with asthenia present numerous complaints²¹. In this case, the state of health sharply worsens with emotional fluctuations^{22,23}.

Asthenia is a psychosomatic disorder, the course of which is largely determined by the peculiarities of the emotional sphere of a sick person (excessively increased demands on oneself and others; striving for power, pedantry, punctuality)²⁴. A typical state of asthenics is continuous anxiety, anxiety, constant fear for their health and the associated ability to work²⁵.

The pathogenesis of asthenia is a set of functional changes in vital organs and especially in the cardiovascular system. In the pathogenesis of asthenia, there are structural and regulatory disorders, including in the vascular wall of the arterial bed in general and especially in the brain and heart.

In asthenia, there is a change in stroke volume and total peripheral resistance. Vasoconstriction can be combined with vasodilation, causing a clear interdependent dysfunction of the renin-angiotensin-aldosterone system and the sympathetic nervous system. Changes in autonomic influences gradually lead to changes in heart rate and deterioration of myocardial contractility.

Particular importance in the pathogenesis of asthenia is attached to the disruption of the activity of the tissue renin-angiotensin-aldosterone system, which causes the formation of left ventricular myocardial dystrophy, changes in

glomerular filtration, impaired vascular smooth muscle tone. The activation of angiotensin receptors leads to a change in the function of the sympathetic nervous system, causing a weakening of the production of norepinephrine. Changes in these two neurohumoral systems occur due to changes in the sympathetic ganglia, in the brain, and due to a decrease in the release of norepinephrine from presynaptic nerve endings. This is often accompanied by activation of the parasympathetic nervous system.

Possibilities of health-improving physical activity in correcting the state of asthenia

Health-improving physical activity is a special type of physical training that ensures the restoration of the physical and mental strength of a person. The main effect for which physical culture is used in asthenia is an increase in working capacity. Subjectively, the effect of increasing efficiency is expressed in relieving fatigue, the appearance of a feeling of cheerfulness and a surge of strength, and objectively - in improving the functional and psycho-emotional parameters of a person²⁶. It can be considered that physical training is a variant of active rest (Figure 1).

Regular health-improving physical training is especially useful if non-forced loads are included in their scheme. Often there is a shift of health-improving physical exercises towards rehabilitation in the case of their combination with the effect on the body of beneficial climatic conditions and the use of jogging, dosed walking, exercise on simulators that contribute to the prevention and elimination of various diseases²⁷. Some sources indicate the importance of recreational forms of physical exercise, in others physical recreation is considered as “mass physical culture”, “mass health-improving”, “active rest”²⁸.

An important preventive mechanism of health-improving physical exercises in relation to asthenia, especially for students, is a change of environment with the exclusion of everyday, monotonous living conditions and distraction from the negative influences of everyday life. Regular physical activity transfers a young person with asthenia to a new functional status, contributes to his close emotional contact with the outside world^{29,30}.

The healing process of young people with asthenia by means of health-improving physical



Fig. 1. Exercise for asthenia (<https://www.freegreatpicture.com/files/photo103/51303-aerobics.jpg>)

exercises, especially in combination with air and sun baths, terrenkur and herbal medicine, is largely based on the activation of blood circulation and metabolism in muscles³¹.

Air baths can be considered as one from effective methods of air hardening, when freely moving air jets act on a partially or completely naked body. The healing power of fresh air lies in its richness in oxygen, light ions, phytoncides and other substances useful for the body. It enhances appetite, improves sleep, improves mood and normalizes the tone of the nervous system and blood vessels, accelerates blood flow³².

Sunbathing in conditions of physical training is also very beneficial for the skin and internal organs of the whole body. Under their influence, the level of hemoglobin in the blood increases, and immunity to pathogens of infectious diseases is activated. They also improve the activity of the nervous system and endocrine glands, which stimulates the whole body.

Elimination of the harmful effects of "muscle hunger" by means of regular physical education significantly increases the physical activity of the body. Walking physical activity is an effective means of increasing overall physical performance²⁸.

The health improvement of students with asthenia should be primarily based on non-drug effects. Their lifestyle and workload should always be adjusted. Recommendations for a dosed increase in physical activity are effective, focused on reducing excess body weight by normalizing the diet and improving the emotional background. The normalization of the somatic status in asthenia is also promoted by a diet based on an increase in the intake of proteins, foods rich in potassium and vitamins^{31,32}.

It is known that health tourism is very useful in asthenia, which helps to stabilize the current state of the body³³. Therefore, when choosing a load for people with asthenia during a tourist trip, one should take into account the age and duration of asthenia, the presence of any complications and the degree of violation of internal organs, always approaching the loads individually^{34,35}.

It is possible to effectively eliminate long-formed asthenia only with the help of a holistic health complex, which, in addition to

health-improving exercises, includes several more components: the use of adequate vitamin products, hardening, strict adherence to the correct daily regimen with mandatory constant self-control.

CONCLUSION

Asthenia is very common among college students in modern society. Its treatment should be based on prevention and improvement, including the use of regular physical training. Their important action in relation to asthenia is the general activation of the body with the weakening of the everyday, tiresome components of daily life and the switch to positive emotions. Physical culture classes help to activate the musculoskeletal system in case of asthenia and to ensure close contact of the patient with his peers-athletes. Elimination of asthenia in young people is an important basis for the prevention of possible pathology of internal organs for many years. This is also helped by the simultaneous use of a rational diet with a high protein content, foods rich in potassium and vitamins.

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Conflict of interest

No conflict of interest is declared.

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Ethics Committee Resolution

The study was approved by the local ethics committee of the Astrakhan State Medical University on September 15, 2018 (protocol '11).

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