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## The Effect Of Physical Activity On Neurophysiological Processes In Students.

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### ABSTRACT

Student studies are a typical example of mental work related to the reception and processing of information and requiring a strong voltage of the sensory apparatus, memory, activation of thinking processes and the emotional sphere. A characteristic feature of this type of work is a strong excitation of the brain in a relatively small area of the nerve centers, which causes their rapid fatigue, tension in the senses and at the same time limiting motor activity. It is noticed that intense mental work is accompanied by involuntary contraction of skeletal muscles, which have no direct relation to the implementation of mental work. The effectiveness of mental performance largely depends on the overall physical performance of the whole organism and mental well-being. It depends on the state of psychophysical qualities of general endurance, emotional stability, speed of mental activity, ability to switch and distribution, concentration and stability of attention. Adequate physical training in the learning process provides a sharp increase in the level of reserve capacity of the body. As a rule, persons experiencing physical exertion spend less time preparing for classes, they develop mental fatigue phenomena more slowly and recover their health more quickly due to activation of repair processes. In addition, by increasing the level of motor activity through targeted physical exercises, you can reduce the level of aggressiveness, frustration and rigidity, which contributes to the harmonious development of the personality.

**Keywords:** sport, physical activity, training, brain activity, personal development.

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## INTRODUCTION

The physiological processes in the body are very dynamic and are subject to various influences [1, 2, 3]. They are very sensitive to physical loads that the body may experience during its ontogenesis [4, 5]. Special attention in this regard is attracted by human brain activity, ensuring its integration into society and various types of working capacity [6, 7].

It is known that human performance, that is, his ability to form and maintain his body in working condition, is associated with the state of physiological functions (respiration, metabolism, blood circulation, and the activity of the muscular and nervous systems) [8, 9].

Efficiency is not only physical, but also mental. It is believed that the mental performance of a person is the ability to perform a certain amount of work that requires significant activation of the neuropsychic sphere [10, 11]. Human physical performance is the ability to perform the maximum possible amount of physical work due to the activation of the musculoskeletal system [12, 13].

A student's study is a typical example of mental work related to receiving and processing information and requiring sensory apparatus, memory, activating thought processes and the emotional sphere [14, 15]. A characteristic feature of this type of work is a strong excitation of the brain in a relatively small area of the nerve centers, which causes their rapid fatigue, tension in the senses and at the same time the limitation of motor activity [16, 17].

Strenuous mental work is accompanied by involuntary contraction of skeletal muscles, which have no direct relation to the performance of mental work [18]. It becomes clear that mental performance depends largely on the overall physical performance of the whole body and mental well-being [19]. It depends on the activity of the psychophysical qualities of general endurance, emotional stability, speed of mental activity, ability to switch and distribution, concentration and stability of attention [20, 21]. In this regard, the goal was set in the work: to assess the impact of regular sports activities on the learning process and the development of the personality of students.

Physical activity is an effective means of physical development of a person, strengthening and protecting his health, a sphere of communication and manifestation of social activity of people, a rational form of organization and conduct of their leisure time. They undoubtedly influence many aspects of human life: authority and position in society, labor activity, on the structure of moral and intellectual characteristics, aesthetic ideals and value orientations [22, 23]. At the same time, physical culture and sport themselves are subject to "feedback" from other social institutions and social life phenomena [24, 25]. Regular physical activities provide every member of society with tremendous opportunities for development, approval and expression of his own self, for empathy and participation in sports action as a process of creativity, make him happy about victory, upset defeat, reflecting the whole range of human emotions, and cause a sense of pride in the infinity of potential human capabilities [26, 27].

Of course, physical activity is of paramount importance for the normal course of mental processes, because there is a very close connection between the activity of the central nervous system and the work of the human musculoskeletal system [28]. Skeletal muscles contain specific nerve endings (proprioceptors), which, with muscular contractions, send stimulating impulses to the brain upon feedback. [29] Many functions of the central nervous system depend on muscle activity [30]. On the one hand, the task of the impulses coming from the proprioceptors is to signal the brain to realize the movements it performs [31]. On the other hand, specific nerve cells simultaneously increase the overall tone of the cerebral cortex, resulting in an increase in its overall functional ability [32]. It is well known that many people think better when walking than in a sitting position, that speakers tend to accompany their speech with gesticulations, and actors prefer to learn their role while walking [33].

The systematic involvement of the muscular system in physical activity, exerting a huge impact on the entire body, stimulates human intellectual activity and increases the productivity of mental labor [34].

The influence of physical stress on the mental and physical sphere occurs simultaneously. It is known that physical exertion does not have a selective, but a holistic effect on the body involved. The organic basis

for the interrelation of these spheres is the unity of the physical and mental in man. It is usually distinguished: biological, pedagogical, psychological and social effects (health, physical development, physical fitness, features of mental self-regulation, social status, style of behavior) [35].

In the process of training, a person improves his movements on the basis of visual, tactile, muscular-vigorous and vestibular sensations and perceptions, his motor memory, thinking, will and ability to self-regulate mental states are enhanced [36].

During self-control and self-regulation of motor actions, almost all intellectual processes take part. This is due, firstly, to the fact that physical exercises pose a variety of tasks to a person (planning, controlling, choosing a strategy), and, consequently, encourage a person to gain experience in solving them. In addition, we can talk about the impact of a deeper and more complex nature, based on the interrelationships of psychomotor and intellectual development, when targeted effects on the human motor sphere cause correlative (correlation) changes in his intellectual sphere [37,38].

Different opinions are expressed regarding the effect on the person of physical exertion and emotional stress. On the one hand, their positive role is emphasized as a means of preparing for difficulties. In confirmation, information is provided that people who regularly train have a higher level of social adaptation and resistance to stress than non-trainers. On the other hand, there is evidence that some people deliberately avoid regular exercise, considering them unpleasant, which makes them a model for studying hypodynamia [39,40,41].

### CONCLUSION

Adequate physical training in the process of individual development provides a fairly high level of reserve capacity of the body. As a rule, people engaged in physical culture and sports spend less time preparing for classes, they develop mental fatigue phenomena more slowly and their working capacity is restored more quickly due to the improvement of recovery processes. When the level of development of motor skills increases with the help of targeted physical exercises, it is possible to reduce the level of aggressiveness, frustration and rigidity, which contributes to the harmonious development of the personality of the young person.

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