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CURRENT SCIENTIFIC GOALS, APPROACHES AND CHALLENGES

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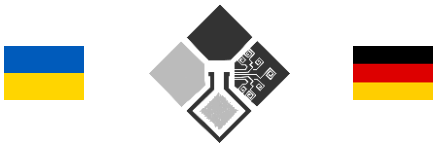
SCIENTIA
COLLECTION OF SCIENTIFIC PAPERS



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COLLECTION OF SCIENTIFIC PAPERS

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Current Scientific Goals, Approaches and Challenges

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SECTION 14.
PSYCHOLOGY AND PSYCHIATRY

SECTION 15.
MEDICAL SCIENCES AND PUBLIC HEALTH

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THE RELATIONSHIP BETWEEN REGULAR PHYSICAL ACTIVITY AND COGNITIVE FUNCTIONS IN HIGHER EDUCATION STUDENTS

Cognitive functions, including memory, thinking, and decision-making, are essential factors in the educational process, with attention playing a particularly important role in academic performance. Under conditions of increasing information overload, high levels of psycho-emotional stress, and the widespread prevalence of sedentary lifestyles, maintaining cognitive health has become especially important. Higher education requires substantial mental effort, organization, and self-discipline. At the same time, physical activity is one of the factors that may significantly influence the development and functioning of cognitive abilities such as memory, concentration, thinking, and decision-making [2–4].

Contemporary research demonstrates that regular physical activity affects the functional state of the central nervous system, promotes neuroplasticity, and improves cognitive performance, particularly attention, memory, and executive functions. Therefore, investigating the impact of regular physical activity on the cognitive functions of higher education students remains highly relevant, especially considering the considerable intellectual demands placed on students during periods of examination preparation.

Obtaining higher education is a complex process that involves not only mastering a large amount of theoretical knowledge but also developing critical thinking, stress resilience, discipline, and the ability to take responsibility for one's decisions. Studying at a higher education institution requires considerable effort and the development of specific competencies. Above all, it involves the ability to combine acquired theoretical knowledge with practical skills, which is accompanied by significant intellectual workload. The ability to organize one's own activities, distribute responsibilities, and effectively delegate tasks is an integral component of a successful educational process and the improvement of cognitive skills, including

memory, thinking, concentration, and decision-making. Numerous studies have shown [2, 3, 5] that maintaining cognitive health largely depends on physical activity, particularly strength and coordination exercises, which directly affect the adaptive capacities of the nervous system. Physical activity is capable not only of strengthening somatic health but also of serving as an important regulator of cognitive resilience [1].

Purpose of the Study. To investigate the relationship between regular physical activity and cognitive functions among higher education students.

Materials and Methods. Analysis of contemporary scientific literature indexed in Google Scholar, as well as a survey conducted among students of Bogomolets National Medical University.

Results and Discussion. To obtain information about the relationship between regular physical activity and cognitive functions of higher education students, a survey was conducted among a sample of 30 students regardless of age and gender. The questionnaire consisted of two sections. The first section focused on determining the frequency, duration, and types of physical activity, including strength training, cardiovascular exercises, yoga, and team sports. The second section assessed cognitive functions such as attention concentration, memory performance, and academic productivity.

According to the survey results, the majority of students (45.5%) engaged in physical activity 2–3 times per week, 27.3% exercised once a week, 9.1% performed physical exercises daily, while 18.2% did not engage in any physical activity. The most common form of exercise was cardiovascular training (running, walking, swimming), whereas strength training was practiced by 36.4% of respondents. Most physically active students reported exercising for 30–60 minutes per session.

Analysis of responses concerning cognitive functions revealed that 54.6% of students who regularly engaged in physical activity rated their ability to memorize new information as moderate or high. Regarding attention concentration, 36.7% of respondents rated it as moderate, while 27.3% assessed it as high. Frequent mental fatigue during studies was reported by 27.3% of participants, whereas 36.4% indicated experiencing it occasionally. At the same time, the influence of physical activity on concentration appeared mixed: 36.4% of students reported a decrease in concentration immediately after exercise, while the same proportion observed no changes. Nevertheless, 36.4% of respondents noted increased academic productivity following physical exercise. These findings are consistent with contemporary studies indicating a positive effect of regular physical activity on cognitive functioning, although the magnitude of the effect may depend on individual characteristics, exercise intensity, and the type of physical activity performed.

Conclusions. The results of this study indicate a positive relationship between regular physical activity and certain indicators of cognitive functioning among higher education students. In particular, physically active respondents more frequently reported better ability to memorize new information and lower levels of mental fatigue. At the same time, the influence of physical activity on attention concentration was inconsistent, which may be related to training schedules and individual physiological differences. The findings support the need for further research involving larger samples and standardized methods for assessing cognitive functions.

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