



Oksana NIKOLAENKO,
Pavel DATSYSHYN

The influence of the psychophysiological state on student performance

*Education is not a preparation for life;
education is life itself.
John Dewey*

The period of study at the university is considered one of the most important stages in the formation of youth in the process of obtaining a vocational education. In this regard, it can be represented, firstly, as a process of self-adaptation, i.e., improving the mechanisms and relationships within the system itself, and, secondly, as a process of adaptation of organisms relative to each other and the environment - intersystem adaptation.

The educational process in any higher educational institution poses two interrelated tasks for its organizers: on the one hand, it is important that students at a high-level master all the material provided for by curricula and programs, become successful highly qualified specialists; on the other hand, it is necessary, in the process of training and subsequent

professional activity, to preserve the health of students as much as possible, to extend their professional longevity [6].

In the course of some of studies devoted to the study of the influence of internal psychophysiological factors, it was found that the individual characteristics of the level of development of cognitive mental processes of students largely determine their adaptability to learning at the university, being both the background and the success factor of this process [5].

The physical development of a person directly depends on their own health. As a biological being, man fights for survival. The main condition for a successful existence in the modern world is health, because its complete or partial absence impedes the realization of a person's life plans. Today, four fundamental processes that determine the individual's state of health can be defined: the reproduction of health, its formation, consumption and recovery. Among these processes, the formation of a person's health depends exclusively on her. The lifestyle that a person leads combines such concepts as nutritional characteristics, physical activity, interpersonal relationships, the presence of bad habits, and in adults - the characteristics of education or work.

Studying at the university places high demands on the health of students. The educational activity of foreign students of a medical university is, on average, at the level of 52-58 hours per week (8-9 hours per day). The main activities of students: attendance at lectures, laboratory and independent studies. It was noted that the work of students has a combination of several specific features inherent only to this form of mental activity: the perception and processing of various information in conditions of time pressure, the frequent occurrence of a state of neuropsychic stress, and the implementation of a significant part of the work in the evening and night. It was noted that the work of students has a combination of some specific features inherent only to this form of mental activity: the perception and processing of various information in conditions of time pressure, the frequent occurrence of a state of neuropsychic stress, and the implementation of a significant part of the work in the evening and night. It is proved that the presented results are the starting material for activities aimed at maintaining health, increasing efficiency, reducing morbidity due to the "difficult" adaptation of the students' body.

Foreign students in the learning process, and especially in its initial period, are faced with a different way of learning than in their countries

than in school the nature of work, and are forced to adapt to a whole range of new objective and subjective factors, among which we can distinguish such as (by I.V. Efimova and others,2003):

- new teaching and control methods;
- change of residence, accompanied by ex-communication from the family and, as a rule, living in a hostel;
- age-related physiological restructuring;
- the transition from childhood dependence to adult status and the increasing role of independence;
- the need to establish relationships with students and teachers;
- change of climatic conditions;
- socio-cultural traditions;
- language barrier.

Students are a fundamentally new stage, compared with previous life: information loads are increased, accompanied by arrhythmias in work, increased lack of exercise, interpersonal relationships are complicated; persons arriving from remote areas have problems associated with a change in the level of urbanization of the environment, living in a hostel, isolation from their family, etc.[4].

Due to the ongoing development of the students' body during the training period, it is more exposed to various adverse effects, which can lead to a breakdown of the adaptation process and the development of a number of diseases. The increase in the incidence of foreign students reduces the effectiveness of the educational process, and further limits their professional activities.

One of the most important learning problems in a modern university is the adaptation of foreign students to the workload. The essential features of their work are intense intellectual activity associated with neuromuscular tension, inactivity, which has an adverse effect on health. The initial period of study at the university is characterized by the impact on the body of foreign students of a number of new factors, including the features of the educational process, the new team and living conditions, the nature of nutrition, which play an important role in the learning process. The functioning of cognitive processes is associated with the effectiveness of students' adaptation to educational activities [1, 2]. At the same time, literature data indicate a potentially high psychosocial maladaptation of students, especially in the initial period of study, which may result from intense mental work, passing exams, changing places of residence and social contacts, the country's culture, and the presence of chronic diseases.

Not all students have an “adaptation price” adequate to the psychophysical capabilities of their body and the laws of the stage of individual development, when the biological maturation of the body ends and the personality becomes social. For this reason, the period of adaptation associated with a change in previous stereotypes can, at first, lead to low academic performance and communication difficulties. In some students, the development of a new stereotype occurs spasmodically, in others it is even. Up to 35% of students suffer from maladaptation syndrome [9]. Therefore, during the training period, students may experience certain deviations in their state of health.

According to some data, already in the first year, 10-15% of foreign students have deviations in their state of health, and graduate from universities with various diseases - up to 40%. A comparative study of the students' health status during the study period showed that in primary courses (the initial stage of adaptation) acute respiratory diseases and vegetative-vascular dystonia predominate. In senior courses, diseases caused by prolonged exposure to constant stress, problems of personal life, domestic and financial difficulties, conflict family relationships - hypertension, peptic ulcer, neurosis, myopia, are more common. This situation reflects the unfavorable course of adaptation processes, the “failure” of adaptation. In senior courses, diseases caused by prolonged exposure to constant stress, problems of personal life, domestic and financial difficulties, conflict family relationships - hypertension, peptic ulcer, neurosis, myopia, are more common. This situation reflects the unfavorable course of adaptation processes, the “failure” of adaptation. [10].

Severe psychosocial maladaptation negatively affects the main cognitive mental processes: attention, memory and thinking. At the same time, the functional abilities of the body of foreign students of elementary courses are reduced, since they all changed the climatic and geographical areas of residence, social conditions. Indeed, studies have shown that 73% of elementary school students had various functional deviations in their state of health.

Timing analyzes and data from questionnaires conducted by many researchers have revealed a number of violations of the daily routine for foreign students of elementary courses: long-lasting, up to 8-10 hours, breaks between meals, lack of time to rest in the air, and reduced duration of sleep. 56% of students on school-days sleep 3-4 hours a day, 19% - less than 4 hours, and only 10% of students had normal sleep. Basically, sleep

time was reduced due to late going to bed: 60% of students go to bed at 24 hours, 35% - at 1-2 hours of the night.

These violations in the regime of the day of foreign students, first of all, are the result of a large total academic load and relocations associated with occupations in departments located in different areas of the city. It takes an average of 12-13 hours per day to study at the university and at home, along with the road, there and back. Students, as a rule, return home and have lunch, immediately sit down to prepare assignments and study until 23-24 hours, and often stay at midnight.

Thus, elementary students have almost no time to relax. It is highly probable that many violations in the daily regime are associated with the inability to plan their time.

A significant part of students, not being able to plan their time budget, is engaged in self-training on weekends. It can be difficult for many students to adapt to studying at a university, the new conditions of educational activity and life situations have a significant impact on their mental and physiological state. At the same time, adaptation proceeds at several levels: didactic (adaptation to a new training system), socio-psychological (entering a new team) and professional (accepting the values of future professional activity). For this reason, the period of adaptation associated with a change in previous stereotypes may at first adversely affect academic performance and lead to minor difficulties in communication.

A critical and difficult examination period for students is one of the options for a stressful situation that occurs in most cases under conditions of time pressure. During this period, the intellectual and emotional sphere of students is subject to increased requirements. Psycho-physiological discomfort can result from both academic overload and poor organization of academic work - irregular work, lack of timely and quality rest, nutrition, and recreational activities.

The total effect of several risk factors on the body is higher when they act simultaneously and become chronic. In the process of mental labor, the main load falls on the central nervous system; its highest part is the brain, which ensures the flow of mental processes - perception, attention, memory, thinking, emotions.

The question between the success of training and the operational reliability of a person, i.e. the ability to steadily maintain optimal operating parameters for specified periods of time and under various difficult environmental conditions [3]. Such reliability significantly depends on the

individual manifestations of the basic properties of the nervous system and, first of all, on the strength of excitation and the functional mobility of nervous processes.

The functional mobility of the nervous system determines the ability to quickly change excitation by inhibition or vice versa. This indicator is directly related to conditioned reflex; behavioral activity determines such an integral characteristic of the brain as the speed of central information processing and speed parameters of the decision-making process, which is one of the main success factors for almost any activity. The functional mobility of the nervous system can be closely related to the ability to quickly respond to changing conditions, tasks and situations. It seems relevant to develop an indicator characterizing both the functional mobility of the nervous system and the cognitive switchability of the individual. Such an indicator may be one of the main psychophysiological determinants that determine the success of studies in a higher educational institution.

However, even with good objective prerequisites for successful study at a university, achieving good results is impossible without a subjective desire for this. In this regard, it is necessary to take into account the structure of the motivational sphere of the personality and, in particular, the severity of the motive for achieving success in training [6] as a factor determining the possibility of forming a system for implementing activities.

It is proved that the indicators of the developed test "Cognitive mobility" characterizes both the sensorimotor and neurodynamic parameters of the physiological level of the functional state of the body, and the value of the cognitive switchability of the personality. It was revealed that high cognitive mobility indicates a good ability to perform cognitively operations, despite the influence of extraneous stimuli and contributes to more successful student learning at the university.

It is proved that there is a stable dependence on the success of training foreign students at a medical university on the characteristics of the motivational sphere of the personality, while the more pronounced is the focus on achieving success in vocational training and the indicator of the concentration of this factor in the subjective semantic space, the higher is the learning success [8].

It was determined that the success of training at a medical university significantly depends on a non-verbally detected emotional-evaluative attitude to it, the more pronounced emotional significance of the goal of activity contributes to the formation of a more adequate systemic response of the body. Persons with a positive emotional attitude towards learning

are characterized by greater concentricity, more balanced in personal characteristics, while they differ in a more pronounced effect of the parasympathetic department of the nervous system and a smaller amount of situational anxiety. This indicates that the more pronounced emotional significance of the goal of the activity contributes to the formation of a more adequate systemic response of the body.

The indicators of the developed cognitive mobility test are most closely correlated with the sensorimotor and neurodynamic parameters of the psychophysiological level of the functional state of the body, as well as with the magnitude of cognitive switchability of the personality, which characterizes the degree of cognitive impairment due to the mixing of new and old, previously acquired associative connections [7].

The nature of the dynamics of the energy, information, activation and effectors' components of the functional state of the body, the indicators of the emotional and affective spheres of the personality of foreign students at a medical university allows us to determine for most of the subjects the onset of the development of a state of psycho-emotional tension by 8-10 months in the annual training cycle.

Students with low indicators of cognitive mobility, a focus on success in vocational training and an indicator of the concentration of this factor in the subjective semantic space revealed a more pronounced tension of regulatory mechanisms, which may indicate a higher psychophysiological cost of training.

The problem of the health status of students at a university is very relevant and requires a definite approach to its solution. This is, firstly, in-depth scientific research, and secondly, the implementation of a set of practical measures aimed at optimizing the educational process, improving the living conditions, nutrition, relaxation of foreign students, improving medical services.

Thus, for the effective formulation of the educational process, it is necessary to improve the system of organizational and pedagogical measures, which should be based on data on the dynamics of the working capacity of foreign students and their level of preparation for admission to the university.

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Authors

Oksana Nikolaenko
*PhD in Biology, Docent,
Department of Normal Physiology,
Vinnytsia National Pirogov'
Memorial Medical University,
Vinnytsia, Ukraine
E-mail: oksnikolaenko@gmail.com*

Pavel Datsyshyn
*PhD in Medicine, Docent,
Department of Normal Physiology,
Vinnytsia National Pirogov'
Memorial Medical University,
Vinnytsia, Ukraine
E-mail: Ferduk@mail.ru*

Abstracts

НИКОЛАЄНКО ОКСАНА, ДАЦИШИН ПАВЛО. **Вплив психофізіологічного стану на успішність студента.** У статті описуються психофізіологічні чинники, які впливають на стан успішності студентів іноземців другого курсу медичного університету; до таких факторів можна віднести процес адаптації до нових кліматично-географічних, соціально-культурних умов, процесу навчання у вузі; здоровий спосіб життя, що включає раціональне харчування, розпорядок дня, гігієну, загартовування і уникнення шкідливих звичок.

Ключові слова: психофізіологічні чинники, успішність студентів іноземців, адаптація, здоровий спосіб життя.

НИКОЛАЕНКО ОКСАНА, ДАЦИШИН ПАВЕЛ. Влияние психофизиологического состояния на успеваемость студентов.

В статье описываются психофизиологические факторы, которые влияют на состояние успеваемости студентов иностранцев второго курса медицинского университета; к таким факторам можно отнести процесс адаптации к новым климато-географическим, социально-культурным условиям, процессу обучения в вузе; здоровый образ жизни, включающий рациональное питание, распорядок дня, гигиену, закаливание и избегание вредных привычек.

Ключевые слова: психофизиологические факторы, успеваемость студентов иностранцев, адаптация, здоровый образ жизни.

NIKOLAENKO OKSANA, DATSYSHYN PAVEL. The influence of the psychophysiological state on student performance. *The article describes the psychophysiological factors that affect the state of academic performance of second-year foreign students at a medical university; such factors include the process of adaptation to new climatic and geographical, socio-cultural conditions, the process of learning at a university; healthy lifestyle, including a balanced diet, daily routine, hygiene, hardening and avoiding bad habits.*

Keywords: psychophysiological factors, the academic performance of foreign students, adaptation, healthy lifestyle.

NIKOŁAJENKO OKSANA, DACYSZYN PAWŁO. Wpływ psychofizjologicznego stanu na sukcesy studentów. *W artykule są opisane psychofizjologiczne czynniki, które wpływają na poziom sukcesów studentów obcokrajowców drugiego roku uniwersytetu medycznego; do takich czynników można zaliczyć proces adaptacji do nowych warunków klimatyczno-geograficznych, socjalno-kulturowych, procesu edukacyjnego na uczelni wyższej; zdrowy tryb życia, w tym zdrowe odżywianie, harmonogram dnia, higiena, hartowanie i unikanie szkodliwych przyzwyczajeń.*

Słowa kluczowe: czynniki psychofizjologiczne, sukcesy studentów obcokrajowców, adaptacja, zdrowy tryb życia.