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**INVESTIGACIÓN CIENTÍFICA**

# Self-healing and healing of the body with the help of neural connections of the brain

## Autocuración y curación del cuerpo con la ayuda de conexiones neuronales del cerebro

Liana Spytska[1*]

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## ABSTRACT

**Introduction:** The need to maintain people's health and extend the life span of the body stimulates finding new methods of maintaining it. Today, this question is quite important, because the consequences of serious diseases cannot always be corrected, but their formation can be prevented. Therefore, the need to study the issue of self-regeneration of the body is urgent. The purpose of the article is to analyse the main methods and aspects of neuroplasticity support, as well as to highlight the main principles of the formation of new synaptic connections. **Materials and Methods:** Methods of analysis, generalization, systematization, comparison, and survey were used to determine the features of self-regeneration of the organism through the formation of new neural networks. **Results and Discussion:** The data obtained during the survey of people were analysed and the main differences in the way of life, as well as its influence on the properties of the brain, were determined. The article identified the most effective methods of self-recovery of the body and the trend of their popularity among the population. The obtained data were compared and the main aspects of the effectiveness of the method of healing the body with the help of neural connections were summarized. **Conclusions:** The results of the study can help psychologists and therapists formulate special programs to avoid brain overload.

**Keywords:** Synapse; Regeneration; Psychoemotional State; Plasticity.

[1] Department of Practical Psychology and Social Work, Volodymyr Dahl East Ukrainian National University, Kyiv, Ukraine, li_spytska@ukr.net
* Corresponding author

## 1. INTRODUCTION

The processes of regeneration of the human body are quite complex and are provided by many factors that must be accommodated and understood for greater possibilities. Recovery of the human body is an important element in cases of diseases with severe consequences. In order to use neural connections during learning, it is necessary to understand how they work, therefore popularization of information and its study is necessary today. The formation of neural connections in the brain ensures a more active and rapid recovery and is capable of preventing diseases. Synapses, the neural connections in the brain, facilitate rapid communication between neurons specialised in different brain activities. These connections are essential for learning, adaptability and overall brain function. Synapses facilitate the transfer of electrical and chemical information between neurons, creating intricate networks that support our cognitive processes, actions and physiological activities. Every time a person learns something new, brain cells create new connections between themselves, which allows information to be stored and reproduced later. Under the influence of negative psychological factors, these connections can be destroyed, so it is important to know how to restore them. The impact of stress, anxiety and other psychological factors on neural connections is significant, affecting cognitive performance, emotional states and the brain's ability to adapt and recover. A comprehensive understanding of these effects is essential for formulating effective approaches to combat mental illness and improve overall mental and emotional health.

S. Madhu et al. [1] analysed in their work three main factors that ensure the recovery of the body. In the study, the authors pointed to the importance of studying the issue of body regeneration of a person with diseases and pathologies. R. Pei et al. [2] studied, during the research, the influence of sociological factors on the emotional state of a person. Properties of the brain to respond to negative external factors and remember specific actions, words, and sentences. Scientists studied the influence of stressful situations on the real life of a person and future actions, which are marked as dependent on past situations. The authors studied the behavioural reflexes of the brain during repeated negative effects of environmental factors. N. Doidge [3] analysed in his work the neuroplasticity of brain neurons and the main stages of restoration in case of damage. The author studied the influence of the neural network on the recovery of patients and ways to achieve the formation of new neurons. Also, the effect of light on the eye regeneration process was analysed and the impact of self-recovery processes on the psycho-emotional state and physical factors of reducing the symptoms of diseases was studied. D. Zhao et al. [4] studied the consequences of disturbances in neural networks, in particular anxiety. The authors studied the regulation of stress in the brain and the activity of neural connections during excitement and the influence of environmental factors, regardless of the cause. W. Winlow and A. Johnson [5] determined that successful recovery after nerve injury depends on synaptic regeneration connections that are functional and appropriate. The authors pointed to the importance of determining the main factors that ensure the process of restoring neurons and the formation of new ones during therapy. Scientists prove the need to analyse all processes that ensure recovery of the body in severe diseases that affect the central nervous system.

Although previous research has provided useful insights into neuroplasticity and self-healing, further comprehensive studies are needed to provide a full understanding of the mechanisms, therapeutic applications and population-specific factors associated with neuroplasticity and self-healing. This study examines the fundamental mechanisms and lifestyle factors that influence neuroplasticity and self-healing in healthy individuals. This offers new perspectives on how to prevent and promote health by understanding and improving the basic neuroplastic mechanisms.

The researchers whose work was analysed studied the problems of neural connections of the brain in certain diseases. The basic principles of synapse regeneration and their impact on the affected organism were determined. The purpose of this study is to determine the basic principles of neuroplasticity and the factors that influence it. The main factors affecting self-renewal processes contribute to the acceleration of the creation of new neural networks. In order to correctly correct diseases, it is necessary to clearly understand the principles of neuroplasticity and its effects.

## 2. MATERIALS AND METHODS

When studying neural connections in the study, their capacity for neuroplasticity was analysed. The research used methods of analysis, comparison, survey, systematization, and generalization. The research was conducted with the general consent of all persons who participated in the survey. In order to study the work of neural connections, the data of 49 students of various universities and specialities were analysed. Psycho-emotional situations were considered to study the recovery of neural networks. Group A consisted of 25 people, they were asked to take a survey on mathematical subjects of medium difficulty. However, before the start, all students from the group were informed about the allegedly failed preliminary exam. Group B consisted of 24 people who similarly passed the maths test, but did not receive additional information about the study before the start of the survey. Informed consent was obtained from all individuals included in this study.

With the help of a survey, data were collected about the people who were studied, lifestyle, nutrition, presence of bad habits, sports, general motor activity, presence of mental or physical work, quality of free time were assigned to the information block. During the survey, all factors influencing the formation of neural connections and increasing the quality of neuroplasticity were taken into account. Also, during the study, all severe stressful situations that can lead to deterioration and disruption of cell regeneration were analysed. The impact of psycho-emotional harmful factors, regardless of their significance for a person, was studied and analysed. With the help of a survey, the properties of neural networks regarding the speed of performing mathematical tasks and tests under different conditions were analysed. The already available research of scientists was also summarized and the differences between the conducted research and the works of the authors were determined. During the study, the results of the surveys were compared and the main aspects of changes in the activity of the neural network and the processes arising as a result of violations were highlighted. During the study, the main principles of the functional state of neural connections were highlighted. Systematization of the received data was carried out. Using the comparison method, all available data and those obtained as a result of the research were processed. The main differences of the groups of persons whose data were compared were determined.

When summarizing all the data obtained as a result of the conducted research, the efficiency of the work of neural connections was determined. The influence of external factors on the regeneration of brain cells was analysed. During the study, the impact of stressful situations, even of a minor nature, on the general activity and ability of the brain to fully function was studied. The main aspects of neuroplasticity and the influence of this property on neural connections were determined in the researched by means of analysis. Using the method of analysis, conclusions were made about the functioning of the brain in stressful situations. Using the method of systematization, the main differences between the studied groups of students were highlighted and the main reasons that could lead to a brain malfunction or a decrease in the speed of information transmission through synapses were indicated.

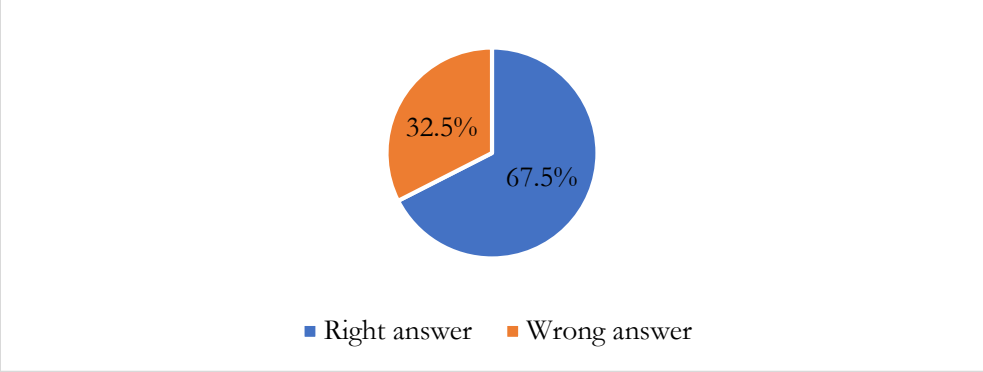
## 3. RESULTS AND DISCUSSION

### 3.1. THE INFLUENCE OF STRESS ON NEUROPLASTICITY AND SELF-HEALING

Neurons have many properties that help maintain the optimal functioning of the body. One of the most valuable is neuroplasticity. This helps neurons to change their structure, expand or shorten their connections, said J. Jaime and S.M. Moenter [6]. New neural networks are formed under the influence of external factors, such as learning or trauma, and internal factors, such as disease and ageing. In order to determine and compare the effectiveness of the formation of new neural connections, the results of a survey of 49 students were taken, who were divided into groups A and B and performed a similar test, but with different conditions (Figure 1; Figure 2). The experiment was conducted in the optimal conditions of the students' stay in the classrooms, in order to exclude the influence of physical factors of the external environment on the body and mental state. Before the start of the survey, the conditions of

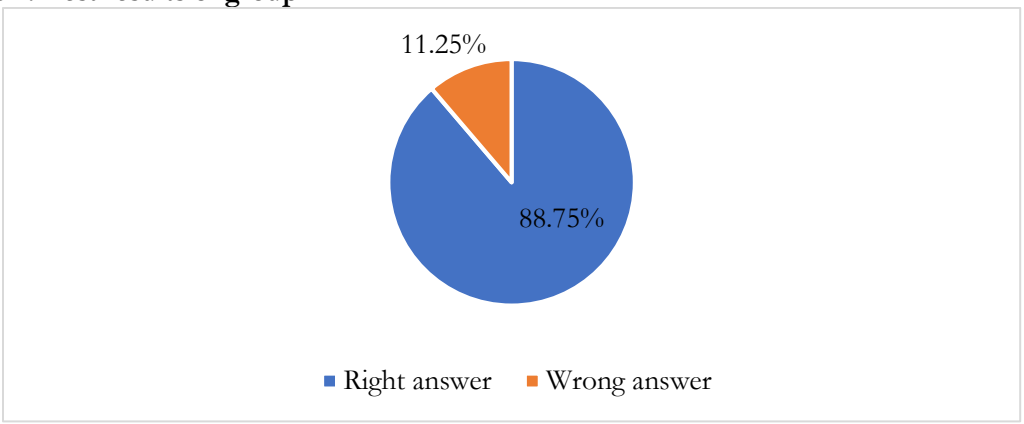
a stressful situation were artificially created for group A. During the examination of the results, it was determined that group A was less focused when performing the test and showed a worse result. This can be explained by the fact that the students were worried and excited, during the action of external stressful factors, neural connections are destroyed and poorly reproduce the information that was previously learned. In order to improve the functioning of the brain, it is necessary to avoid factors that negatively affect neuroplasticity, and F. Espinosa et al. [7].

**Figure 1. Test results of group A**




During the action of stress factors, which were applied to group A, in order to determine the impact of psycho-emotional factors on the brain, the level of glucocorticoids, hormones produced by the adrenal glands, increases in the body. They act on the structure of neurons and create changes in the processes of information transmission between cells. Negative external factors in the course of their action on neurons can reduce the size of dendrites and disrupt the functionality of neurotransmitters. These changes lead to a violation of the transmission of messages between neurons, which is one of the main reasons for the occurrence of diseases of physical and mental aetiology. Analysing the results of the survey, during the study it was determined that the average number of correct answers in group A was 54 out of 80 proposed tests, which is 67.5%. In group B, this indicator is 71 out of 80, that is, 88.75% of correct answers. During the study, it was determined that students who were in a stressful situation answered 21.25% worse than those who performed the task without previously specified negative conditions.

**Figure 2. Test results of group B**




A 21.25% discrepancy in accuracy on an academic test would normally be considered a highly significant discrepancy in most educational settings. According to most common grading standards, a student who scores 67.5% would just meet the minimum passing standard, whereas a student who scores 88.75% would be considered to be very high achieving. This could have a significant impact on eligibility for

promotion, special programmes, scholarships or future prospects. In addition to the current testing situation, such a significant discrepancy also suggests significant differences in basic understanding of concepts, ability to think critically and level of comprehension. The findings suggest that stress interferes with the full expression of knowledge and skills. Students under extreme stress find it difficult to retrieve previously acquired information. In a broader context, the 20% drop in performance has significant implications in real-world scenarios. Stress can significantly prevent individuals from performing to their full potential in a variety of situations, such as academic examinations, career assessments, high-pressure competitions or cognitively demanding tasks. In contexts where cognitive sharpness and rapid cognitive processing are crucial, such differences could have significant consequences.

The results of the experiment suggest that the causes of diseases can be not only physical factors, but also psycho-emotional factors. The negative impact of stressful situations changes the functional state of neurons, which disrupts all processes of self-renewal of the body. It is important to note that when the mechanical properties of brain cells change, neuroplasticity decreases, which leads to a decrease in the body's regeneration processes in various diseases. In order to increase the efficiency of the formation of new neural connections, the main aspects that can affect the speed of regeneration were determined. They include training as the most valuable factor. During the memorization of new material, neuroplasticity provides a change in the structure or addition of neural networks of the brain, because this is new information that must be learned and later reproduced. This provides a quick transfer of previously learned data when a person remembers something. Ensuring psycho-emotional well-being is the basis for reducing damage to neural networks, the absence of stress is an important element of stable psychological health, this is what the research proves. Another important factor is the absence of bad habits, because the effect of toxic substances on the human brain is negative and works in the opposite way. That is, it breaks neural connections and reduces the speed of information transmission. An equally important external factor is physical activity and sports. Motor activity can stimulate the formation of new neural networks and improve blood circulation in the brain, which contributes to its more effective self-regeneration, this was also pointed out in the work by A.V. Sidorov and V.N. Shadenko [8]. Therefore, it is necessary to remember that a physically fit person is less vulnerable to various diseases, thus it serves as a prevention of complications. In order to improve neuroplasticity, it is necessary to follow the rules of a healthy diet, because it provides the necessary resources for the development and functioning of neurons. Meditation can reduce stress and improve concentration, which promotes neuroplasticity in brain cells.

The results of the study show the need to maintain psycho-emotional health, because the more stressful the body experiences, the greater the probability of damage to the brain and cell structure. During the action of stress factors of the external environment, the process of transmitting information through synaptic connections is disrupted, the functionality of mediators changes, the consequence of which is the occurrence of diseases, in which self-recovery processes will be less effective. The main reasons for the formation of new neural connections are the ageing of the human body and diseases arising from mechanical and psychological damage to the brain, this was pointed out by D. Bronson and R. Kalluri [9]. The processes of restoration of neural networks are activated in the absence or dysfunction of synapses. Thus, patients with developed neuroplasticity will be able to undergo rehabilitation more easily and quickly, and will ensure self-recovery of the body, which is extremely important in the case of severe brain damage. In the study, the main principles of the restoration of neural networks and the impact on the general recovery of the body were determined. It is important to note that it is important to increase the effectiveness of neuroplasticity not only in the presence of diseases to ensure better regeneration, but also in their absence, which will ensure a reduction in the effect of ageing of the body and in the event of complications, even minor damage to the body, this was also noted by A. Joshua [10]. Therefore, adherence to the basic principles of a healthy lifestyle, quality nutrition, study, meditation and physical activity will ensure less influence of external and internal factors. When abusing harmful substances, especially during recovery, is a key point for delaying regeneration and worsening the general condition of the body. Understanding the basic principles of neuroplasticity and its effects will help to better understand the importance of following the elementary rules of a healthy lifestyle, he pointed out. After all, the consequences of diseases are not always the same for different types of people, it depends

primarily on physical activity, compliance with medical treatment, heredity, but the presence of bad habits can significantly worsen the situation.

Self-recovery and healing of the body using neural connections consists in the activation of mechanisms of compensation and self-regulation in stressful situations and diseases, regardless of aetiological factors, external or internal. Therefore, the brain controls various physiological processes and ensures a functionally active state of the body. Neural connections allow the brain to interact with other body systems, such as the endocrine, immune, and nervous systems. In a stressful situation, the brain activates the production of such stress hormones as adrenaline and cortisol, which act on synapse receptors. Also, neural connections help the brain to interact with the external environment, which allows the body to adapt to new conditions and perform the necessary functions. For example, with a brain injury, neural connections can help restore damaged tissues and body functions. During the study, survey data were analysed, from which it can be understood that the anatomical structure of cells is easily affected and deformed. Under the influence of stressful situations, severe damage to the neural network occurs, which is difficult to recover. Most often, the delay in the regeneration of brain cells occurs with permanent damage to synapses. When trying to restore the connection of neural origin under such conditions, self-renewal is almost impossible, the constant destruction of cells and their elements reduces the chances of rebuilding the damaged neural network. Therefore, it is extremely important to constantly improve the properties of neural connections. It was determined that people who increased the effectiveness of neuroplasticity through training, quality nutrition, and meditation recovered their psycho-emotional state faster. They were less exposed to external factors and gave them less importance, which helped to reduce the presence of negative emotions in life.

The process of self-healing can be enhanced through a variety of practices. After all, the ageing of the body and the possibility of diseases directly depends on the psycho-emotional state of a person and his attitude to situations of a stressful nature. People who have a hard time enduring negative emotions and don't get much rest are more vulnerable to all harmful environmental factors. It is extremely necessary to reduce the impact of negative factors or reduce them to a minimum, this will ensure less vulnerability and stress resistance. The main methods of increasing the effectiveness of neuroplasticity and creating neural networks include the process of meditation and learning. During the study of new information, new neural connections are created, which improve when repeating the studied material, this will ensure better memorization. During the study, it was determined that exposure to even minor stressors has a significant impact on the general functioning of the brain and the body as a whole. The psycho-emotional state determines a person's attitude to all environmental factors, positive or negative. In order to reduce the emotional perception of stressful situations, it is recommended to contact psychotherapists, if necessary, this will ensure a stable psycho-emotional state and reduce the negative impact of various harmful factors on the body.

### 3.2. LIFESTYLE FACTORS INFLUENCING NEUROPLASTICITY

Neural connections change or restore their structure under the condition of neuroplasticity, which ensures high-quality healing of the body, this was also noted by M.V. Ugryumov [11]. A person's habits and lifestyle directly affect neuronal synapses and their structure. Firstly, this is a factor of balanced nutrition, which directly affects the body and provides energy expenditure during the formation of new neural connections. During the study, the data of individuals regarding physical activity were analysed, so it is worth noting that people who are less exposed to external psychological factors and maintain an active lifestyle are less vulnerable and less likely to suffer injuries, and therefore have greater resilience. This affects the cardiovascular system, thereby increasing the blood supply to the brain and significantly speeds up the processes of self-renewal and formation of new neural networks. The process of meditation was determined to be no less effective as a factor that develops neuroplasticity. The ageing of the organism includes the work of self-renewal of neural networks, with frequent stressful situations that lead to violations of the structure of neural connections, the regeneration process becomes more complicated, the properties of neurons were also noted by M. Hernandez-Morales et al. [12]. Therefore, constant stress accelerates ageing. Also, stress can lead to a decrease in the number of new neurons formed in the

hippocampus, the part of the brain responsible for memory and learning. This can lead to memory and concentration problems. Physical activity can help the brain recover from stress. This is due to the fact that during physical activity of the body, the number of new neurons formed in the hippocampus may increase.

The study summarized the methods of improving the functioning of the brain and its blood supply, which directly affects the ability to regenerate. During the analysis of the results, it was determined that the self-healing of the organism depends not only on physical factors that can affect anatomical structures, but also on psycho-emotional factors that affect the processes of rapid information transmission. The importance of prevention is the basis of any disease with damage to brain cells. Quality and balanced nutrition, physical and mental activity, meditation, quality rest, and the absence of harmful habits that have a toxic effect on brain cells were identified as the main methods of improving neuroplasticity and the body's ability to self-regenerate. The main principles of self-regeneration of the organism are determined to increase the efficiency of the work of neural connections and the formation of new ones under the influence of external and internal factors, this was also noted in the work by A.R. Chambers et al. [13].

Healing of the body occurs by restoring the functions of cells that have been damaged. The speed of regeneration depends on the ability and structure of neurons; therefore, it is extremely important to maintain the optimal operation of the elements of the neural network that ensure the transmission of information to areas of the brain. When the reaction of receptors on the structural components of synapses decreases, the effectiveness of the main functions of neurons changes. It usually occurs when exposed to toxic substances regardless of aetiology and mechanical damage to brain cells. During the research, it was determined that when using methods to improve neuroplasticity, self-renewal of neural connections and the formation of new ones is more effective. Restoration of affected neuron structures ensures regeneration in case of severe diseases and the effort of the body. Understanding the dependence of the properties of neuron structures and factors that can be adjusted by the body makes it possible to ensure minimal complications and speed up self-healing processes. With age, the properties of neural networks lose their elasticity and plasticity, so it becomes increasingly difficult to restore the cell structure, it was noted by A.K.M.R. Karim et al. [14]. In order to increase the effectiveness of the properties of neurons, it is important to take care of the influence of physical factors on the body in a timely manner, because over time the processes of self-renewal become more complex. Therefore, by following the rules of a healthy lifestyle and quality nutrition, it is possible to reduce the impact of stressful situations on one's psycho-emotional state. During the study, the main influence of positive and negative factors of the external and internal environment was determined. It has been established that neuroplasticity directly depends on the blood supply to the brain, mental activity and the absence of exposure to toxic substances. It is important to understand that the negative impact on psychological health is reflected in the properties of neurons to build new connections and change their structure when damaged. Constant stress and lack of rest leads to premature ageing of the body. Self-healing processes are provided by the properties of neurons, especially the ability to neuroplasticity, which helps to restore damaged areas in time and reduce the impact of environmental factors on the entire body. The creation of psychologically stable conditions for life makes it possible to increase the effectiveness of the processes of learning, memorization, meditation, and quality rest. As S. Coombes and K. Wedgwood [15] noted, self-renewal through neural connections is an important process for brain health and psychological well-being. A correct understanding of this process will help preserve neural networks and ensure high-quality reproduction of the information that a person learns. Using relaxation practices, it is possible to increase the effectiveness of self-recovery processes and reduce negative external factors that lead to stress. The study showed that the brain is very sensitive to information coming from the environment, therefore it responds to stress perception, with a less emotional attitude of a person, it becomes easier to control the psycho-emotional state, which will ensure the stability of the body's systems.

### 3.3. IMPLICATIONS FOR HEALING AND RESILIENCE

The properties of neural networks are an important factor in the study of self-healing of the body, due to the ability of neurons to change their structure. During the study, the main aspects of neuroplasticity and the influence of factors on enhancing the effectiveness of their action were determined. When using meditation and yoga, it is possible to increase the capabilities of the brain, in particular, increase neuroplasticity, it was noted in the work by S.T. Ahmed et al. [16]. The authors noted that synapses have the ability to transmit a large amount of information, and the newer data passes through the neural connection, the greater the probability of creating new synaptic networks of neural origin, it is possible to agree with this statement, but it is worth noting that this mechanism of creating neural networks is more it is important for damage to the brain and its cells, for full regeneration. Using methods of cognition and concentration, which are used during the practice of yoga, a person increases the efficiency of neuroplasticity and the number of neural connections. The authors noted that an imbalance between various neurotransmitters and the synapse itself is the main cause of various types of central nervous system (CNS) disorders. Scientists studied the causes of CNS diseases associated with disorders of neural networks or synapses.

D. Tian and S.I. Izumi [17] conducted studies of neuroplasticity and determined the main aspects of micro- and macrocommunication. The main properties of neural networks were determined, but during the research little attention was paid to the recovery processes in diseases and their importance for medicine, especially in severe cases. The researchers looked at the plasticity-inducing effects of four TMS protocols in the human motor cortex. Additionally, neurophysiological evidence and plasticity rules of these protocols were integrated to present an updated model of micro- and macro-communication between neocortical neurons and neurophysiological evidence. The main aspects of the creation of different types of neural connections were examined.

W. Phillips [18] studied the properties of neurons. The author noted that neurons receive information signals from many sources and can amplify them if necessary. Determined that the neural network builds the absolute perception and psychological life of a person. The scientist noted that neurons are endowed with unique properties that can be developed, or they increase their effectiveness in case of damage to various aetiological factors. The property of neurons to plasticity and elasticity provides a practical structure of the cell, which is able to change and differentiate depending on the circumstances, we can agree with this statement, because a neuron is one of the most difficult structured cells, therefore the main properties ensure its vital activity and recovery processes. Neural connections are one of the most functional structures of the brain, which have the ability to increase their effectiveness under the influence of human activity.

D. Cabral et al. [19] conducted research and determined the main aspects of rehabilitation of stroke patients and the main factors affecting non-invasive brain stimulation. It was noted that the mechanisms of neuroplasticity of neural networks are more effectively activated when the brain is damaged, but the damage itself can also change the properties of neurons. However, the authors paid less attention to other processes that can stimulate cell regeneration, because not only negative factors can affect the recovery process, but also positive ones, such as meditation, training, rest, yoga. During the study, two groups of participants were compared: stroke patients and a control group. In total, the data of 32 people were analysed, 16 people in each group. The authors investigated neuroplasticity in all humans and by analysing data determined by transcranial magnetic stimulation.

K. Pravin [20] noted that the property of neuroplasticity of brain cells manifests itself as the ability to change its structure under the influence of external environmental factors, regardless of whether it is a mechanical or psycho-emotional injury. The author pointed out that the brain is able to change and regenerate throughout life, which ensures its high functionality. The scientist claims that every new information that has been learned throughout life changes the structure of the neural network forever, the exceptions are the affected areas, which after recovery are able to restore a completely new neural population, different from the previous one, with this statement it is possible to agree. The author notes that the more a person repeats learned information or performs a movement he has just learned, the stronger the new neural pathways become. Therefore, it is extremely difficult to forget well-learned

information that has been constantly repeated on your own, only when the relevant part of the brain is completely affected.

Adhering to the general principles of the development of neuroplasticity, it is possible to ensure rapid recovery after severe damage to brain cells and tissues [21; 22]. Scientists conducting research on neural connections pointed to the importance of maintaining sustainable neuroplasticity and increasing its effectiveness with the help of methods that help develop the properties of neural networks. The influence of heavy stressful situations leads to deterioration of creation of connections of neural origin. When analysing the properties of neurons, it can be noted that they are quite differentiated cells that are able to change shape, and have good elasticity and plasticity, which helps to restore damaged areas more efficiently and faster when needed [23-25]. In order to improve the quality of neuroplasticity of cells, it is necessary to use methods that help to improve the properties of neural networks. Scientists who studied the functions of neurons note that the stimulus for changes in the cell structure is factors affecting the external and internal environment. Studying neuronal networks, the importance of timely regeneration and the influence of factors that increase the plasticity and elasticity of neurons was noted. The impact of stress on the psycho-emotional state is determined by the main factor that suspends the processes of self-recovery and healing, because at that moment, all brain processes are aimed at restoring the affected part [26; 27]. It has been studied that even a small effect on the body is negative information leads to deterioration of functions. With severe psychological damage, a complete cessation of the activity of certain properties of the brain for a certain time is indicated.

In order for the neural network to work effectively, it is necessary to refrain from exposure to harmful substances of a toxic nature in the form of alcohol and tobacco, because they affect neural synapses by disrupting the transmission of impulses and suppressing the activity of receptors that perceive mediators [28; 29]. Meanwhile, the processes of positive influence, such as learning, meditation, physical activity, only increase the effectiveness of neuroplasticity, which helps to reduce the severity of complications arising from brain damage [30]. The impact of stressful situations does not allow the neural network to fully recover, so it is important to understand that avoiding negative emotions and strong experiences increases the efficiency of the brain. Therefore, in the event of severe psycho-emotional moods, it is necessary to consult a specialist and solve the problem in time. After all, with the prolonged effect of a negative factor, the brain is not able to fully respond to all other stimuli and ensure the stability of mental and physical health [31].

The influence of neural connections on recovery directly depends on all the properties of the cell and the degree of their development. It is necessary to understand exactly how the methods of improving the quality of neuroplasticity affect, for the sake of their correct use, which is the basis of self-healing and healing of the body. The importance of disseminating information about the possibility of preventing brain lesions with the help of the functional state of neurons is an important issue, because in this way it is possible to ensure the reduction of complications and the speed of recovery of patients. The question of the development of neuroplasticity is one of the most popular when using rehabilitation therapy for brain damage. If following all the requirements of the body recovery process used today, it is possible to get a positive result, however, if the concomitant diseases or infections that occurred during the treatment are severe and difficult to correct, then the effectiveness of the methods decreases. To solve the problems of the psycho-emotional state today, psychologists who correctly and easily explain the situation help. It is important to understand the impact of all the negative factors surrounding a person and to correctly set priorities for experiences and give importance to certain events that occur during the day.

## 5. CONCLUSIONS

During the study, the influence of external and internal environmental factors on structural changes of neurons was determined. The influence of negative external factors and stressful situations on the general functioning of the brain was analysed. During the analysis of the data, it was noted that the minimum is reflected in the mental capacity of the brain cells, because group A performed 21.25% worse than group B. The formation of new neural connections helps to restore the activity of the neural network faster, so

it is extremely important to ensure the minimum impact factors that disrupt synaptic connections between cells. The influence of methods of improving neuroplasticity, which include adherence to the basic principles of a healthy lifestyle, quality nutrition, learning, meditation, and the presence of physical activity, has been determined. During the study, it was determined that the body's self-renewal processes are included under the action of internal factors – ageing and disease, and under external factors, which include trauma, which requires the restoration of neural connections or the formation of new ones, and the processes of mental activity that ensure neuroplasticity of neurons. The research determined that during self-repair and healing of the body, neurons are able to change their structure, expand or shorten their connections with other neurons, which allows the brain to adapt to new conditions and perform its functions. During the research, it was determined that toxic substances slow down self-healing processes, so it is worth avoiding the influence of factors with negative consequences. During further research, it is necessary to determine in more detail the main problems of the formation of neural networks and possible methods of improving the work of neural connections themselves, as well as how they can be used in specific diseases. In future studies, it is necessary to determine the stages of popularization of the influence of stressful situations on the body's self-regeneration. It is necessary to determine the mechanism of the influence of stress on the work of the brain and the psycho-emotional state of the human body.

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