UDC 925.159:008.51-024:503
DOI https://doi.org/10.32782/health-2023.1.7

THE WAYS OF ORGANIZING OF LOGONEUROSIS TREATMENT: THE ASPECT OF PHYSICAL REHABILITATION

Mykhalchuk Nataliia Oleksandrivna,
Dr. in Psychology, Professor,
Head of the Department of English Language Practice
and Teaching Methodology
Rivne State University of the Humanities
ORCID: 0000-0003-0492-9450
Researcher ID: A-9440-2019
Scopus Author ID: 57214227898

Kharchenko Yevhen Mykolaiovych,
Doctor of Medicine, Professor,
Professor of the Department of Physical Rehabilitation and Ergo-Therapy
Rivne Medical Academy
ORCID: 0000-0002-4340-8503
Researcher ID: AAU-7523-2020
Scopus Author ID: 57216872875

Ivashkevych Eduard Zenovych,
Doctor of Psychology, Professor,
Professor of the Department of General Psychology
and Psychological diagnostics
Rivne State University of the Humanities
ORCID: 0000-0003-0376-4615
Researcher ID: V-8872-2018
Scopus Author ID: 57216880484

Ivashkevych Ernest Eduardovych,
PhD in Psychology, Professor's Assistant of the Department
of English Language Practice and Teaching Methodology, Translator
Rivne State University of the Humanities
ORCID: 0000-0001-7219-1086
Researcher ID: F-3865-2019
Scopus Author ID: 57216880485

Khupavtseva Nataliia Oleksandrivna,
Doctor of Psychology, Professor's Assistant
of the Department of General Psychology and Psychological diagnostics,
Rivne State University of the Humanities
ORCID: 0000-0002-8883-7686
Researcher ID: AAC-2156-2019
Scopus Author ID: 57221383831

The purpose of our research is to show the main ways of organizing of logoneurosis treatment, to determine the aspects of physical rehabilitation.

Research methods. The research methods were the method of observation and the empirical study of patients. The place of organizing the empirical stage of our research was the psychiatric hospital No. 1 in Kyiv, December 2022 – February 2023. With the help of clinical, pathopsychological and anamnestic methods were diagnosed 86 children in the age 3–12 years old (the average age is 8 ± 0,5 years old) with logoneurosis in anamnesis.

The results of the research. Spontaneous speech (involuntary, independent) is the most difficult for those who stutter, because it assumes a natural and quite active process of communication of the child with others: questions, requests, appeals, messages, exchange of ideas, expressions of wishes, etc. Thus, the process of free independent speech in children

who stutter is brought up in language classes in the following sequence: joint-reflective speech; respectively – interrogative form of speech; retelling or story; spontaneous speech.

Conclusions. Taking into account all the listed forms of speech, speech exercises are built by a Speech Therapist in the following sequence: memorized text; the text that the patient worked out aloud; a thought-out text; unfamiliar text, impromptu.

Therefore, the difficulties in the speech of those ones who stutter increase depending on whether the child pronounces individual sounds, words or phrases. In the latter case, stumbling blocks are most common. Moreover, there are too many of them in a complex phrase than in a simple one, and in sentences, which are connected by meaning (retelling, story), and they there are more than in separate ones.

Key words: *logoneurosis, treatment of logoneurosis, physical rehabilitation of children with logoneurosis, spontaneous speech, involuntary speech, independent speech, questions, requests, appeals, messages, exchange of ideas, expressions of wishes.*

Михальчук Н.О., Харченко Є.М., Івашкевич Е.З., Івашкевич Е.Е., Хупавцева Н.О. Шляхи організації лікування логоневрозу: аспекти фізичної реабілітації

Мета *нашого дослідження – показати основні шляхи організації лікування логоневрозу, визначити домінувальні аспекти фізичної реабілітації в цьому процесові.*

Методи дослідження. *Методами дослідження були метод спостереження та метод емпіричного дослідження хворих. Місцем організації емпіричного етапу нашого дослідження стала психіатрична лікарня № 1 м. Києва, грудень 2022 – лютий 2023. За допомогою клініко-патопсихологічних та анамнестичних методів було обстежено 86 дітей віком 3–12 років (середній вік 8 ± 0,5 року) з логоневрозом в анамнезі.*

Результати дослідження. *В процесі лікування логоневрозу спонтанне мовлення (мимовільне, самостійне) є найскладнішим для тих, хто заїкається, бо воно припускає природний і досить активний процес спілкування дитини з оточуючими: запитання, прохання, звернення, повідомлення, обмін думками, вираження побажань і т.д. Таким чином, процес організації вільного самостійного мовлення у дітей, що заїкаються, формується на мовних заняттях у такій послідовності: спільно-відображувальне мовлення; відповідно-запитальна форма мовлення; переказ або розповідь; спонтанне мовлення.*

Висновки. *З урахуванням всіх перерахованих форм мовлення мовленнєві вправи з метою лікування логоневрозу мають будуватися логопедом у такій послідовності: завчений текст; текст, що пацієнт відпрацював вголос; подумки продуманий текст; незнайомий текст, експромт. Отже, труднощі в мовленні тих, хто заїкається, зростають залежно від того, чи вимовляє дитина окремі звуки, слова або фрази. В останньому випадку частіше за все трапляються запинки. Причому в складній фразі їх надто більше, ніж у простій, а в зв'язаних за смислом фразах (переказ, розповідь) більше, ніж в окремо взятих.*

Ключові слова: *логоневроз, лікування логоневрозу, фізична реабілітація дітей з логоневрозом, спонтанне мовлення, мимовільне мовлення, самостійне мовлення, запитання, прохання, звернення, повідомлення, обмін думками, висловлення побажань.*

Introduction

Some researchers (Huang, Oquendo, Friedman, Greenhill, Brodsky, Malone, Khait & Mann, 2003), doing their empirical researches according to logoneurosis, explained it by various deviations in the activities of the peripheral and central departments of the speech apparatus. Thus, scientists (Lin, Chen, Chan & Hsu, 2019) associated the mechanism of logoneurosis with a lack of cerebral responses to the muscular system of the speech organs, such as with the activity of the central nervous system. Other researchers (Hardeman, Medina & Kozhimannil, 2016) explained logoneurosis as a result of distortion of sound pronunciation (rotacism, lambdacism, sigmatism), organic damage to the vocal apparatus or defective brain function. He was the first one who had noted the focus of acoustic attention stuttering on his language. Some other scientists (Tabachnikov, Mishyiev, Kharchenko, Osukhovskaya, Mykhalchuk, Zdoryk, Komplienko & Salden, 2021) considered logoneurosis a certain contracture of the muscles of the vocal apparatus, which occured due to its lack of innervation.

A lot of researchers (Mykhalchuk, Pelekh, Kharchenko, Ivashkevych, Ivashkevych, Prymachok, Hupavtseva & Zukow, 2020) have considered logoneurosis as a functional disorder in the field of speech, convulsive neurosis. Some others (Onufriieva, Chaikovska, Kobets, Pavelkiv & Melnychuk, 2020) defined logoneurosis as purely mental suffering, which was expressed by convulsive movements in the speech apparatus, as psychosis.

So, the **purpose** of our research is to show the main ways of organizing of logoneurosis treatment, to determine the aspects of physical rehabilitation.

Methods of the research

The place of organizing the empirical stage of our research was the psychiatric hospital No. 1 in Kyiv, December 2022 – February 2023. With the help of clinical, pathopsychological and anamnestic methods 86 children in the age 3–12 years old (the average age is 8 ± 0,5 years old) with logoneurosis

in anamnesis. The research method was empirical study of patients.

The examination of children who stutter was carried out comprehensively (a speech therapist, a neurologist, a psychologist) with the involvement of other specialists: a pediatrician, a therapist, a psychiatrist, an ophthalmologist, an otolaryngologist and others.

Results and their discussion

Adverse conditions, which facilitate logoneurosis, are:

– *physically weakened children*;

– *age features of brain activity*; large hemispheres of the brain are mainly formed by the 5th year of life, by the same age functional asymmetry is formed in the brain. Language function is ontogenetically the most differentiated, especially fragile. Moreover, its slower maturation in a case of boys compared with girls caused greater instability of their nervous system;

– *accelerated development of speech* (3–4 years old), when the child's communicative, cognitive and regulatory functions are developed rapidly under the influence of communication with adults. Many children during this period are characterized by a repetition of syllables and words (iterations), which has a physiological nature;

– *hidden mental imbalance of a child*, increased reactivity as a result of not quite normal relationships with others;

– *a conflict between the peculiarities of the environment* and the degree of its awareness;

– *lack of positive emotional contacts between adults and children*. There is emotional tension, which is often externally accompanied by stuttering;

– *insufficient development of motility, sense of rhythm, facial expressions and articulatory movements* (Kharchenko & Zavadska, 2022).

In the presence of one or another of these adverse conditions any extraordinary stimulus is enough to cause a nervous breakdown and stuttering. In the group of *production causes* there are anatomical and physiological, mental and social reasons.

Anatomical and ***physiological causes***: physical diseases with encephalitic consequences; injuries – such as intrauterine, natural, often with asphyxia, concussion; organic disorders of the brain, which can damage the mechanisms of the subcortex, regulatory movements; exhaustion or fatigue of the nervous system as a result of intoxication and other diseases that weaken the central speech apparatus: measles, typhoid, rickets, worms, especially whooping cough, diseases of internal secretion, metabolism; diseases of the nose, pharynx and larynx; imperfection of the sound apparatus in cases of dyslalia, dysarthria and speech delay (Kharchenko & Zavadska, 2022).

Mental and ***social causes of logoneurosis***: short-term, one-time mental trauma (fear, stress); long-term (longitudinal) mental trauma, which means improper upbringing in the family: spoilage, imperative upbringing, unequal upbringing, upbringing of "the exemplary" child; chronic conflict experiences, long-term negative emotions in the form of persistent mental stress or unresolved, constantly fixed conflict situations and situations of cognitive dissonance (internal conflict); acute severe mental trauma, strong, sudden shocks that cause acute reactions of affect: a state of horror, excessive joy; incorrect speech formation in childhood: speech on the breath, rapid speech, speech disorders, rapid nervous speech of parents; overloading young children with language material; age-inappropriate complication of language material and thinking (abstract concepts, complex phrase construction); polyglossia: simultaneous mastery of different languages at the early age, which can cause stuttering, usually in any one language; imitating another stuttering person (Kharchenko & Zavadska, 2022).

The problem of our article is to show the main results of the examination of children with the diagnosis "logoneurosis". During the examination, the speech therapist pays a great attention to accompanying speech disorders and disorders of moving: extra words or sounds, pronunciation of some sounds, words and even sentences on the breath, incorrect pronunciation of speech sounds, deficiencies in the vocabulary and grammatical structure of speech, tempo, tics, myoclonus (involuntary movements), various auxiliary (arbitrary) movements and some features of speech behavior: stiffness and tension of general movements or, on the contrary, their abruptness, chaotic, disorganized, "looseness" (Tabachnikov, Mishyiev, Drevitskaya, Kharchenko, Osukhovskaya, Mykhalchuk, Salden & Aymedov, 2021).

In the process of doing researches in the process of children's games activity, according to the nature of these games, their relationships, the degree of games activity and emotional state of people – all these categories are revealed. During the study of different educational activities, our attention has to be paid to how pupils who use different forms of speech in the learning process (Villar, Blanco & del Campo, 2015). Our attention has also been drawn to the presence of psychological features in the process of physical rehabilitation, in particular, to the degree of painful fixation on a speech defect (Hayden, Farrar & Peiris, 2014).

Everyone can learn about the psychological characteristics of people who stutter from conversations with their parents. The speech therapist ***clarifies the information about the contact of children with others*** (at home, at school, with peers and adults, with acquaintances and strangers), ***pays attention to the assessment of their own language*** (the person will know or won't know about the imperfection of their speech, what exactly it means for them), ***on the presence of defensive reactions*** (offensiveness, shyness, masking, evasion of language communication), ***on speech behavior during the examination*** (waiting for help, striving to actively overcome the deficiency or not understanding why speech classes are needed). The study of children who stutter continues in the course of ***the corrective course***. In addition to conversations with those ones, who stutter, their parents, studying psychological, pedagogical and medical documentation, has to use the methods to create ***experimental games and educational situations***. ***Psychodiagnostic methods*** are also used (the Rorschach method, the Thematic Apperceptive Test (TAT), Z. Rosenzweig's method, the "Test-conflict" method, the Method of unfinished sentences, Rating scales, Tests of mental functions and motor skills, etc.). These methods are used for the purpose of obtaining information for building up a diagnostic picture, for more subtle understanding of the psychological characteristics of those ones who stutter. Quantitative and qualitative information has to be obtained with their help, can be interpreted on the basis of a complex psychological and pedagogical study of the subject.

The conclusion is taken into account in ***the Speech Therapy report***: *the form of stuttering* (tonic, clonic, mixed), *the type of convulsions* (respiratory, vocal, articulatory, mixed), *degree of stuttering* (mild, medium, severe), *a pace of speech* (slowed, accelerated, presence of tachylalia), accompanying stuttering, dyslalia, the erased form of dysarthria, general underdevelopment of speech, the state of motor function, the presence of mental symptoms of stuttering: fear of speech (logophobia), motor and speech techniques, embolophrasis, a change in speech styles, the presence of excitement in the process of stuttering, reactions to excitement, etc. The fixation of attention on the speech process and its influence on stuttering, the influence of the complexity of the speech situation on stuttering, individual and psychological characteristics of the person who stutters, the nature of the game activity, the attitude to educational and learning activities, the range of situations in which stuttering is found (all of them or only some of them).

A Speech Therapy Conclusion makes it possible to carry out a differential diagnosis of the child's personality and to distinguish stuttering from other speech disorders (tachylalia, dysarthria, from speech stuttering of a purely physiological nature), as well as to separate different forms of stuttering from each other. The data of a complex study of a person who stutters allow us to establish *the nature of logoneurosis*. The presence of various manifestations of stuttering, the study of the psychological characteristics and behavior of everyone who stutters, also determine the peculiarities of the choice of means, methods and focus of speech therapy, which works individually for each person who stutters, in the conditions of general step-by-step speech therapy activity with the whole group.

The prognosis for overcoming logoneurosis depends on many conditions, first of all, on the mechanisms of this disease, on the timing of the initiation of complex actions and the completeness of their application, on age, etc. It can be assumed that the younger the age, the more active and cheerful the general behavior of the child is, the fewer parts of the speech apparatus affected by the spasm and the weaker the spasm itself, the smaller the number of mental layers, the more positive the prognosis will be. For stuttering that develops on the basis of congenital exacerbation or acquired neuropathy, and that appeared without the influence of specific external actions, the prognosis of healing is less favorable.

In the process of logoneurosis treatment, there are often relapses. Respiratory convulsions are more or less successfully eliminated than vocal convulsions, clonic forms disappear more easily than tonic ones. Therefore, it is easier to influence them through the second signaling system than tonic ones, which are characteristic for the excitation of the subcortex of the brain, which is much more difficult to be influenced by therapeutic action. The prognosis largely depends on both the personality of the child and the personality and skills of the speech therapist.

In the process of logoneurosis treatment, there are often relapses. Respiratory convulsions are more or less successfully eliminated than vocal convulsions. Clonic forms disappear more easily than tonic ones. Therefore, it is easier to influence them through the second signaling system than tonic ones, which are characteristic for the excitation of the subcortex of the brain, which is much more difficult to be influenced by therapeutic actions. The prognosis largely depends on both the personality of the child and the personality and skills of the speech therapist. In the most cases, the

speech therapist's prognosis for stuttering is favorable, and the social adjustment of people who stutter is carried out to a sufficiently high degree.

The prevention of stuttering in our country is carried out comprehensively and consistently. Initially, it is carried out with the parents before the birth of the child in order to prevent negative effects on the child after its birth (to protect the head from blows, keep the nasopharynx and oral cavity in order, to prevent chronic diseases, carry out treatment in a timely manner, to remove adenoid growths). Since oral speech is developed according to the scheme (or a model) of imitation, people with stuttering, tachylalia, stumbling and other speech disorders can play a rather unfavorable role for each child. Children should be encouraged to communicate, but refrain from very abundant speech production. Nervously inclined people need to create a calmer atmosphere: a limit of communication and noisy games do not pamper them with new toys, avoid large gatherings of people around them if it is possible.

When entering school, a child may develop stuttering or its recurrences. Therefore, prevention of stuttering should also be carried out during school years. You should avoid unexpected challenges of children and forcing them to give quick answers; to create a favorable atmosphere in the classroom around the person who stutters; to communicate speech therapy knowledge to parents and teachers. In the pubertal period, the attention is paid to the state of the child's nervous system, to his/her relationships with others, to adequate ways of asserting himself/herself as the individual. Various deviations of the adolescent's neuropsychological state, to overstrain of nervous activity, the emotional volitional sphere, incorrect self-esteem, the predominance of negative personality traits can cause stuttering or its recurrence.

Special attention should be paid to the prevention of relapses based on their causes. The following causes of relapses of stuttering can be indicated: poor social living conditions (nervous situation, rude attitude towards the child, overloading of the nervous system by studies, extra classes, activity, mental overstrain); not enough reasons firm consolidation of success in the process of speech therapy classes, lack of dispensation; insufficiently deep re-education of a child who stutters, incomplete elimination of repeated mental stratifications, the "grounds" on which stuttering has been arisen, for example, suppressed, suppressed emotions, strained relationships with others, lethargic current chronic diseases, etc. There are also diseases that exhaust the nervous system; mental injuries; insufficient attention from others to a child who has been cured of stuttering; violation of activity modes, as well as sleep, nutrition, and rest modes; unresolved traumatizing, constantly acting factors, for example, that the child's mother or father stutters.

Knowing the indicated and other possible causes of relapses of stuttering, the Speech Therapist constantly carries out preventive activity both during speech therapy classes and after their completion. The didactic principle of systematicity and consistency in the process of Speech Therapy classes with those suffering from logoneurosis is reflected, first of all, in the logical arrangement of the content of these classes, when the communication of certain classes and the education of correct speech skills in those people who stutter take place in a purely systematic and consistent manner order, taking into account children's speech abilities, when the entire learning process goes from simple to complex, from known to unknown, from easy to difficult.

The impermanence of stuttering has been known for a long time. For a long time, specialists have not given up hope of finding a way to retain, to establish the ability to present fluent speech in those people who stutter: whether it is speech carried out in a certain form, or speech in some special situations. Specialists of different times were constantly searching for techniques, methods and tools that would allow those ones who stutter to transfer these basics of fluent speech to the atmosphere of natural communication with the people around them. History is known for numerous attempts to create various systems of introducing gradual, successively more difficult exercises, which should be a kind of transitional bridge from easier forms of speech to much more complex ones. These exercises would be at the same time the necessary training, which should allow those who stutter to speak without thinking, freely in any conditions.

The Speech Therapist must have a clear idea of the factors that can influence the strengthening or weakening of convulsions. After all, knowledge of these factors will allow doctors to find effective ways to manage speech spasms, prevent them or avoid them. It turns out that there are quite a lot of such factors. Some of them relate to the specifics of human oral speech. Others can be attributed to the features of the external conditions surrounding a person at the time of his/her communication, or to certain features of his/her internal state in the process of communication.

The observations show that the speech of a child who stutters is influenced by different degrees of his/her independence. This means that the frequency

and strength of speech spasms depends on whether the child speaks by himself/herself (he/she asks questions, involuntarily expresses his/her thoughts, wishes) or does it with the help of another person. This help (direct or indirect) can be expressed in prompting a child with logoneurosis a sample phrase, and even simply in saying it together.

Depending on the degree of independent speech in this process, several stages can be distinguished, which gradually become more difficult (Table 1).

Table 1

Connected speech, when the child follows the Speech Therapist and pronounces phrases together with him/her

The Speech Therapist tells	The Speech Therapist and the child pronounce together
I am holding a cube in my hands	I am holding a cube in my hands
An elephant is drawn on the cube	An elephant is drawn on the cube

This is the easiest form of speech for those people who stutter. In the case of even very severe forms of logoneurosis is, the child is bound to speak absolutely freely. This is due to the fact that in the case of this form of speech, the child actually only copies the phrase of another individual (its construction, manner of pronunciation), and even pronounces it not independently, but with the help of an outsider. The degree of independence here is practically reduced to zero.

Reflected speech involves (in contrast to connected one) only the repetition of a phrase by the child following the Speech Therapist without its joint pronunciation. To compare we'll propose Table 2.

Table 2

Connected speech, when the child follows the Speech Therapist and pronounces phrases together with him/her

The Speech Therapist tells	The child repeats
I picked up a ball from the floor	I picked up a ball from the floor
This ball is bright blue	This ball is bright blue

As you can see, the child here also fully uses someone else's construction of the phrase, its tempo, intonation, manner of pronunciation, but he/she is already partially deprived of help in the form of joint pronunciation. This form of speech is also quite accessible to all children who stutter.

In contrast to connected speech, in the case of reflected speech children have elements of independent speech. True, these are still separate words having been used independently, and, at the same time, it is still a kind of reflected language. After all, the answer to a specific question allows the child to use a certain construction of the statement and almost all the words contained in the question, adding only 1–2 words. A child who stutters a lot of should be given detailed answers to questions, like this: what is the boy (or someone else) doing, why, for what? To such questions, the child is forced to answer with an expanded phrase, and quite often – more than one word. But at the same time, the child no longer has the opportunity to "lean" on the question. Such answers bring the child closer to independent speech. Retelling makes it even more difficult for a person who stutters to speak, as it requires her to immediately pronounce not 1–2 phrases, but much more. Not only simple, but also more complex phrases can be found here. And you need to convey them consistently and coherently to the listener. There are also some points in the narration that make it easier for a child who stutters to speak. This is, first of all, material is expressed by someone: a retelling of a fairy tale, a story, a film you saw, etc. This means that there is already some definite pattern. It is enough to remember the sequence of presentation of the material, individual constructive examples, and there is already help. A story is already a completely independent presentation of material on a topic: based on a picture, based on one's own impressions left from an excursion, a walk.

And finally, spontaneous speech (involuntary, independent) is the most difficult for those who stutter, because it assumes a natural and quite active process of communication of the child with others: questions, requests, appeals, messages, exchange of ideas, expressions of wishes, etc. Thus, the process of free independent speech in children who stutter is brought up in language classes in the following sequence: joint-reflective speech; respectively – interrogative form of speech; retelling or story; spontaneous speech.

Another factor that can influence the state of speech of those ones who stutter may be the different degree of its preparation. For a person who stutters, the manner in which the speech material is prepared, which the Speech Therapist is going to operate on, is of great importance. It is easier to speak with someone who stutters when the text is memorized. Then there is no need to search for words, the necessary constructions of statements, to retell the material sequentially. Moreover, memorization usually involves repeatedly saying a certain speech

material out loud. So, in this case, there is also some preliminary speech training. The speech of a person who stutters is presented more freely when the child first practices saying the necessary material out loud or at least thinks in advance in his/her mind what he/she wants to say and in what sequence he/she will say it. Manifestations of logoneurosis intensify when the text is completely unfamiliar to the patient and it is necessary to speak impromptu, that is without prior preparation.

Conclusions

Taking into account all the listed forms of speech, speech exercises are built by a Speech Therapist in the following sequence:

– memorized text;

– the text that the patient worked out aloud;

– a thought-out text;

– unfamiliar text, impromptu.

The next factor that can affect the appearance or disappearance of speech convulsions of a person who stutters is the different complexity of the speech structure. Patients who stutter quite easily pronounce individual sounds, less often they tell syllables, and even less often – words. Difficulties in them, as a rule, are arisen at the beginning of the presentation of the text (it is difficult to start speaking), at the beginning of the semantic segment of an extended phrase (after a breathing or semantic pause), or at the beginning of a simple phrase. Stops, "stumbling" often appear on certain ("difficult") sounds.

Therefore, the difficulties in the speech of those ones who stutter increase depending on whether the child pronounces individual sounds, words or phrases. In the latter case, stumbling blocks are most common. Moreover, there are too many of them in a complex phrase than in a simple one, and in sentences, which are connected by meaning (retelling, story), and they there are more than in separate ones.

Hence there is increasing complexity of speech exercises. First is, that there are sounds and syllables, then – some words, then – phrases from simple to complex ones, and, finally, coherent speech. The degree of volume of the speech of those ones who stutter, also affects the free flow of it. As a rule, those ones who stutter always speak freely, in a whisper, they never have convulsions and in the case of silent speech, that is, when sounds or words are articulated only silently, patients "pronounce" a phrase without a single sound. People who stutter speak more fluently, quietly rather than loudly. But as a paradox, the opposite picture is sometimes observed, when loud and even very loud speech is in a case when a child who stutters, sounds absolutely without pauses. This does not happen often and it is usually observed for timid, quiet, shy children.

Therefore, free and loud speech of those people who stutter is achieved, as a rule, by performing consecutive speech exercises pronounced by patients silently, in a whisper, quietly, loudly, in a normal voice.

The speech of those people who stutter is positively influenced by fluency and rhythm. Even in this case, there is an opinion that in order to get rid of stuttering, you need to sing or read poems, or speak singly, that is, strongly stretch vowel sounds.

Indeed, in the process of singing, rhythmic verse speech or in the case of "singing" speech, speech spasms disappear or they are significantly reduced. However, this does not mean at all that, using only these forms of speech, you can get rid of stuttering. In addition, as observations show, that artificially stretched speech ("singing" pronunciation of phrases, sentences, some words, etc.) does not take root in those who stutter. They are no less ashamed of it than of their stuttering, and, as a rule, they prefer to use incantatory, but familiar to them speech, than new, artificial one, which attracts attention to itself.

LITERATURE

1. Huang Yung-yu, Oquendo M.A., Friedman Jill M.H., Greenhill L.L., Brodsky B., Malone K.M., Khait V., Mann J.J. Substance abuse disorder and major depression are associated with the human 5-HT1B receptor gene (HTR1B) G861C polymorphism. International Journal of Neuropsychopharmacology. 2003. Vol. 28(1). P. 163–169. DOI: 10.1038/sj.npp.1300000.

2. Hardeman Rachel R., Medina Eduardo M., Kozhimannil Katy B. Structural Racism and Supporting Black Lives – The Role of Health Professionals. *New England Journal of Medicine.* 2016. Vol. 375 (22). P. 2113–2115. DOI: 10.1056/NEJMp1609535.

3. Hayden F.G., Farrar J., Peiris J.S. Towards improving clinical management of Middle East respiratory syndrome coronavirus infection. *Lancet Infect Dis.* 2014. Vol. 14(7). P. 544–546. DOI: 10.1016/S1473-3099(14)70793-5.

4. Kharchenko Yevhen, Zavadska Iryna. The Causes of Logoneurosis in Childhood. *Збірник наукових праць «Проблеми сучасної психології»*. 2022. Вип. 56. С. 150–170. URL: https://doi.org/10.32626/2227-6246.2022-56.150-170

5. Lin Ch.-Hua, Chen F.-Chua Chan H.-Yu, Hsu Ch.-Chi. Time to Rehospitalization in Patients with Schizophrenia Receiving Long-Acting Injectable Antipsychotics or Oral Antipsychotics. International Journal of Neuropsychopharmacology. 2019. Vol. 22(9). P. 541–547. DOI: org/10.1093/ijnp/pyz035.

6. Mykhalchuk Nataliia, Pelekh Yurii, Kharchenko Yevhen, Ivashkevych Eduard, Ivashkevych Ernest, Prymachok Lyudmyla, Hupavtseva Nataliia, Zukow Walery. The empirical research of the professional reliability of 550 doctors during

the COVID-19 pandemic in Ukraine (March–June, 2020). *Balneo Research Journal.* 2020. 368. September, 2020. Vol. 11(3). P. 393–404. DOI: http://dx.doi.org/10.12680/balne.

7. Onufriieva L., Chaikovska O., Kobets O., Pavelkiv R., Melnychuk T. Social Intelligence as a Factor of Volunteer Activities by Future Medical Workers. *Journal of History Culture and Art Research.* 2020. Vol. 9(1). P. 84–95. URL: http://dx.doi.org/10.7596/taksad.v9i1.2536.

8. Tabachnikov S., Mishyiev V., Kharchenko Ye., Osukhovskaya E., Mykhalchuk N., Zdoryk I., Komplienko I., Salden V. Early diagnostics of mental and behavioral disorders of children and adolescents who use psychoactive substances. *Психиатрия, психотерапия и клиническая психология.* 2021. Вип. 12(1). С. 64–76. DOI: 10.34883/PI.2021.12.1.006. URL: http://apps.webofknowledge.com/full_record.do?product=WOS&search_mode=GeneralSearch&qid=3&SID=C2rooGzb9Eyq4lCkoTY&page=1&doc=1

9. Tabachnikov S., Mishyiev V., Drevitskaya O., Kharchenko Ye., Osukhovskaya E., Mykhalchuk N., Salden V., Aymedov C. Characteristics of Clinical Symptoms in Psychotic Disorders of Combatants. *Психиатрия, психотерапия и клиническая психология.* 2021. Вип. 12(2). С. 220–230. DOI: 10.34883/PI.2021.12.2.003.

10. Villar J., Blanco J., del Campo R. Spanish Initiative for Epidemiology, Stratification & Therapies for ARDS (SIESTA) Network. Assessment of PaO/FiO for stratification of patients with moderate and severe acute respiratory distress syndrome. *BMJ Open.* 2015. Vol. 5(3). URL: http://10.1136/bmjopen-2014-006812.

REFERENCES

1. Huang, Yung-yu, Oquendo, M.A., Friedman, Jill M.H., Greenhill, L.L., Brodsky, B., Malone, K.M., Khait, V. & Mann, J.J. (2003). Substance abuse disorder and major depression are associated with the human 5-HT1B receptor gene (HTR1B) G861C polymorphism. International Journal of Neuropsychopharmacology, 28(1), 163–169. DOI: 10.1038/sj.npp.1300000.

2. Hardeman, Rachel R., Medina, Eduardo M. & Kozhimannil, Katy B. (2016). Structural Racism and Supporting Black Lives – The Role of Health Professionals. *New England Journal of Medicine,* 375 (22), 2113–2115. DOI: 10.1056/NEJMp1609535.

3. Hayden, F.G., Farrar, J. & Peiris, J.S. (2014). Towards improving clinical management of Middle East respiratory syndrome coronavirus infection. *Lancet Infect Dis.,* 14(7), 544–546. Retrieved from: http://10.1016/S1473-3099(14)70793-5.

4. Kharchenko, Yevhen & Zavadska, Iryna (2022). The Causes of Logoneurosis in Childhood. *Zbirnyk naukovykh prats «Problemy suchasnoi psykholohii» – Collection of scientific issues "Problems of modern Psychology"*, 56, 150–170. Retrieved from: https://doi.org/10.32626/2227-6246.2022-56.150-170.

5. Lin, Ch.-Hua, Chen, F.-Chua, Chan, H.-Yu & Hsu, Ch.-Chi (2019). Time to Rehospitalization in Patients with Schizophrenia Receiving Long-Acting Injectable Antipsychotics or Oral Antipsychotics. International Journal of Neuropsychopharmacology, 22(9), 541–547. DOI: org/10.1093/ijnp/pyz035.

6. Mykhalchuk, N., Pelekh, Yu., Kharchenko, Ye., Ivashkevych, Ed., Ivashkevych, Er., Prymachok, L., Hupavtseva, N. & Zukow, W. (2020). The empirical research of the professional reliability of 550 doctors during the COVID-19 pandemic in Ukraine (March–June, 2020). *Balneo Research Journal. 368,* 11(3), September 2020, 393–404. Retrieved from: http://dx.doi.org/10.12680/balne.

7. Onufriieva, L., Chaikovska, O., Kobets, O., Pavelkiv, R. & Melnychuk, T. (2020). Social Intelligence as a Factor of Volunteer Activities by Future Medical Workers. *Journal of History Culture and Art Research,* 9(1), 84–95. Retrieved from: http://dx.doi.org/10.7596/taksad.v9i1.2536.

8. Tabachnikov, S., Mishyiev, V., Kharchenko, Ye., Osukhovskaya, E., Mykhalchuk, N., Zdoryk, I., Komplienko, I. & Salden, V. (2021). Early diagnostics of mental and behavioral disorders of children and adolescents who use psychoactive substances. *Psihiatrija, psihoterapija i klinicheskaja psihologija – Psychiatry, Psychotherapy and Clinical Psychology,* 12(1), 64–76. DOI: 10.34883/PI.2021.12.1.006

9. Tabachnikov, S., Mishyiev, V., Drevitskaya, O., Kharchenko, Ye., Osukhovskaya, E., Mykhalchuk, N., Salden, V. & Aymedov, C. (2021). Characteristics of Clinical Symptoms in Psychotic Disorders of Combatants. *Psihiatrija, psihoterapija i klinicheskaja psihologija – Psychiatry, Psychotherapy and Clinical Psychology,* 12(2), 220–230. DOI: 10.34883/PI.2021.12.2.003.

10. Villar, J., Blanco, J. & del Campo, R. (2015). Spanish Initiative for Epidemiology, Stratification & Therapies for ARDS (SIESTA) Network. Assessment of PaO/FiO for stratification of patients with moderate and severe acute respiratory distress syndrome. *BMJ Open,* 5(3). Retrieved from: https://doi.org/10.1136/bmjopen-2014-006812.