THE EFFECTIVENESS OF SPEECH THERAPY MASSAGE IN THE CORRECTION OF STUTTERING

Abstract. The article is devoted to the study of the effectiveness of speech therapy massage in the correction of stuttering. It systematises and summarises the available knowledge about speech therapy massage and its effect on the nervous system. Massage as a therapeutic technique is known for its beneficial effects on muscles and the nervous system. It has been determined that speech therapy massage can improve the functioning of the speech muscles and reduce pathological manifestations in the nervous system, thus contributing to the normalisation of speech. As a result of massage therapy, positive psychological changes are also observed, such as reduced stress levels and improved mood. To achieve maximum effectiveness, it is important to have a thorough knowledge of the anatomy of the muscles of the tongue, face, neck and shoulder girdle, the area of innervation of the corresponding pairs of cranial nerves in the head and neck, and to have an understanding of the mechanisms of the disorder. Understanding the principles of speech therapy massage can be an important step in the correction of stuttering. The article discusses the neurological signs and pathogenesis of stuttering, including neuromotor factors. The types of voice, articulation and respiratory convulsions that can occur in stuttering are described. Particular attention is paid to massage techniques and approaches in accordance with the severity of symptoms and individual patient characteristics. Recommendations for massage and the importance of its inclusion in the complex therapy of stuttering are highlighted.

Keywords: stuttering, speech therapy massage, tempo-rhythmic speech disorders.

Problem Statement. Stuttering is a fairly common speech disorder that significantly affects a person's quality of life and social adaptation. Statistics from
recent years show that the number of people with stuttering is growing in Ukraine. To a large extent, we see the impact of Russia's large-scale armed aggression against Ukraine, which began on 24 February 2022. Military conflicts are often accompanied by traumatic events, such as the loss of loved ones, physical and psychological trauma. These events can be a catalyst for the onset or exacerbation of stuttering due to their significant impact on the mental state of both adults and children. Stress can lead to psychological problems, such as anxiety and depression, which in turn can influence the development of stuttering or worsen existing symptoms. Stress can also cause tension in the muscles, including those responsible for speech. This can lead to muscle discoordination, which in turn can lead to the appearance of speech stuttering and convulsions. Stress also affects the respiratory function, which is also important for speech fluency. Despite centuries of research into stuttering and numerous attempts to correct it, effective treatment methods remain the subject of ongoing research. One of the methods that has shown promise in this context is speech therapy massage, which is aimed at improving muscle coordination and relaxing the organs of the articulatory apparatus.

**Analysis of recent research and publications.** The theoretical justification of the need for speech therapy massage in complex correctional work can be found in Y. Ribtsun, G. Lopatina, L. Begas and many other Ukrainian authors. Outside of Ukraine, a significant contribution to the understanding of stuttering problems and its correction was made by K. Becker, C. Boliek, H. Gutsmann, W. Jacob, A. Liebmann.

The problem of expressiveness and fluency of speech of children with stuttering in Ukraine is considered in the studies of O. Kaliuzhna, O. Verzhykhovska, I. Martynenko, V. Hiliarovskiyi, I. Sikorsky, A. Kravchenko, Z. Leniv, V. Kotyrlo, O. Kazakova and others. A. Kravchenko, L. Moroz, L. Stakhova, I. Kravchenko, V. Androsova study the problem of the relevance of using acupressure or acupressure massage in the correction of stuttering.

**The purpose of the article** is to study the effectiveness of speech therapy massage in the correction of stuttering, to systematise and summarise existing knowledge, and to establish new information on the effectiveness of speech therapy massage as a method of stuttering correction.

**Presentation of the main research material.** Massage is a therapeutic technique that involves the application of mechanical energy to organs and tissues by stroking, rubbing, kneading and vibration. Speech therapy massage originated on the basis of hygienic, sports and cosmetic massage. The use and history of classical massage techniques goes back many centuries. Speech therapy massage has a multifaceted effect on the body, especially on the nervous system. Massage can help to reduce pathological manifestations in the skin and muscles, which reduces the flow of pathological impulses to the central nervous system. The central nervous system creates conditions for normalising the relationship between the cortex, subcortex and other parts of the brain. Studies have shown that massage can increase
or decrease the excitability of the nervous system, depending on its functional state and the method of exposure [1]. Improving blood circulation, oxidation and metabolic processes in nervous tissue has a positive effect on the dynamics of nervous processes. This leads to an increase in muscle performance and a decrease in tone in spastic muscles. In cases of flaccid paresis of the articulatory muscles, pathological motor synergies and synkinesias, these improvements can reduce these conditions and achieve relaxation of the speech muscles.

Positive psychological changes are observed when using massage therapy. Massage can reduce anxiety and stress levels, increase self-control and confidence, and release positive emotions and improve mood. The relaxation effects of massage can help to reduce tension in the muscles of the face and neck, as well as improve breathing, which helps to reduce psycho-emotional stress and create a sense of comfort and calmness [2]. Speech therapy massage helps to stimulate positive emotions, improve mood, feelings of satisfaction and inner harmony. This is due to an increase in the release of endorphins and serotonin, which are natural antidepressants and provide a sense of happiness and well-being. Positive psychological changes occur: the emotional state improves, stiffness decreases, a feeling of pleasant warmth arises, etc.

To achieve the greatest effectiveness during speech therapy massage, it is important that the massage therapist has a thorough knowledge of the anatomy of the muscles of the tongue, face and cervical-shoulder girdle, the area of innervation of the corresponding pairs of cranial nerves of the head and neck, and also has an understanding of the mechanisms of the disorder.

Stuttering is a discoordinated convulsive speech disorder that occurs in the process of communication through the mechanism of systemic speech and motor neurosis, and is clinically represented by primary, speech, i.e. neuromotor disorders, and secondary, neurotic, disorders, which often become dominant in adults. In many cases, stuttering occurs against an organic background in the form of cerebral deficits of various genesis [4].

A stuttering speech disorder is expressed in a disorder of coordination of speech movements. The main cause of this disorder is cortical dysfunction, which disrupts the relationship between the cortex and subcortex, as well as conditioned reflex mechanisms that control the activity of subcortical formations. These disorders can lead to negative changes in the functioning of the striopallidary system.

To perform a movement, it is necessary for some muscles to contract and others to relax. That is, a precise and coordinated redistribution of muscle tone is required. This redistribution of muscle tone is carried out by the striopallidary system.

The striopallidal system is an important component of the motor system that regulates voluntary movements. They are formed in the subcortical region of the brain and are part of the extrapyramidal system, which is of great importance in the
motor pyramidal system. At a time when the cerebral cortex was not yet developed, the striopallidal system was the main motor centre that determined the animal's behaviour. However, with the development of the cerebral cortex, the striopallidal system became subordinate. The cerebral cortex is the main motor centre that ensures readiness for controlled, precise and differentiated movements under its control.

The movements of newborns are unclear and uncoordinated, but as the striatum matures, the child's movements become more efficient and precise.

Stuttering can be caused by disorders of the striopalline speech regulator, which can be triggered by strong emotions or brain damage. This can lead to various manifestations, such as repetition of sounds or words, or muscle spasms in the form of cramps. Gradually, the pathological reflex becomes fixed as a conditioned reflex.

During the examination of oral praxis in people with stuttering, the following neurological signs are detected: limited speed, strength and volume of movements of the articulatory apparatus, difficulty switching between different articulatory positions, hypertonia, tongue and lip tremors, synkinesia, sometimes hypersalivation and motor innervation disorders.

Neuromotor disorders in stuttering have a common pathogenetic basis with motor disorders. They are diverse and persistent, similar to other fixed motor stereotypes that are consolidated over time and experience.

The severity of stuttering depends on the severity of the neuromotor and neurotic components. In most cases, stuttering occurs against the background of organic lesions and is primarily a neuromotor disorder.

Organic lesions in stuttering can occur at different levels of the nervous system. For example, lesions of the subcortical nuclei and conduction pathways can lead to changes in the speech apparatus, including increased muscle tone and synchrony disorders in the articulatory, respiratory and vocal parts of the speech apparatus. There is also an increase in tone in the speech muscles in extrapyramidal disorders. Lesions of the conduction systems can also lead to increased muscle tone and disorders of the prosodic components of speech. At the level of the peripheral motor nerves that innervate the muscles of the speech apparatus, metabolic disorders and complications in the transmission of nerve impulses to the muscles are observed, which leads to limited voluntary movements and increased tone.

Organic disorders cause cramps in the respiratory, vocal and articulatory apparatus.

Respiratory cramps can be inspiratory, expiratory and respiratory. Inspiratory cramps occur during inhalation and are characterised by a sudden convulsive inhalation that occurs before a word or in the middle of a word. Expiratory cramps are observed on exhalation, especially during speech, and are accompanied by strong contractions of the abdominal muscles. Respiratory or rhythmic cramps are characterised by repeated inhalation and exhalation before the beginning of a phrase, phrase or word.
Vocal cord cramps occur when pronouncing vowels, due to the closure of the vocal cords and the cessation of air supply. Vocal cramps can be closed, vocal cord spasms, and jerky laryngeal spasms. Closed spasms are characterised by a sudden cessation of voice supply and closure of the vocal cords. Vocal cramps occur as a result of increased tone of the vocal muscles and involuntary vocal cord activity, which is often accompanied by changes in voice timbre. Jolt-like laryngeal spasms are characterised by clonic movements of the glottis, which cause a variety of atypical sounds.

Spasms of the articulatory apparatus can be facial or lingual. Facial spasms include labial, maxillary, mandibular, angular, and twitching openings of the mouth. Tongue spasms may include tongue tip spasm, tongue back and root spasm, sublingual spasm, tongue expulsion spasm, and soft palate spasm. Both clonic and tonic types of spasms can occur [5].

In the course of corrective work with children and adults with stuttering, differentiated speech therapy massage is performed in combination with correctional classes, medication (if necessary) and physiotherapy.

Methods of applying differentiated massage in various cases of speech pathology have been developed relatively recently and have not yet been widely implemented in speech therapy practice. There is no doubt among specialists in this field that massage is advisable in speech therapy, especially in the treatment of severe speech disorders such as dysarthria, apraxia, rhinolalia and stuttering.

Speech therapy massage is an active method of mechanical influence that changes the state of muscles, nerves, blood vessels and tissues of the entire speech apparatus. This is a technique that normalises all components of speech: breathing, voice, prosody, resonance and articulation, and has a significant impact on the emotional state of people with speech disorders [3].

Speech therapy massage is aimed at the muscles of the peripheral speech apparatus, including the muscles of the articulation apparatus, vocal cords and respiratory apparatus. Massage not only helps to relax the muscles, but also increases receptor activity, which improves blood circulation and regulates afferent impulses that reach the relevant centres of the brain. It is also an important component for the normalisation of the functional state of the human higher nervous system. It is advisable to perform speech therapy massage in combination with breathing exercises, voice exercises and logorhythmics.

The massage technique for stuttering includes such techniques as stroking, deep stroking and light vibration, which are aimed at improving blood circulation and muscle relaxation. Due to the importance of articulation massage for the normalisation of the functioning of the higher nervous system, it is recommended that each session begins with a speech therapy massage.

In the case of severe subcortical symptoms with tonic cramps and impaired smoothness of movements in people with stuttering, the main purpose of massage is
to calm and relax the nerve endings. At the same time, techniques aimed at improving blood circulation are used carefully, alternating with relaxing movements.

In cases where a person with stuttering has a lesion of the cortical-nuclear pathways (spasticity of the articulatory muscles, tremor of the lips, tongue, expulsive tongue spasm), the main purpose of massage is to increase receptor activity. This results in impulses that reach the relevant centres of the brain, with subsequent regulation of afferent impulses. Stroking, acupressure, and sometimes kneading techniques are mainly used to improve metabolic processes and increase muscle performance.

After the massage, there is a decrease in the tone of spastic muscles and an increase in it in cases of flaccid paresis. These changes indicate a stimulating effect of the procedures on the functional state of the neuromuscular system.

In cases of hyperkinetic symptoms in people with stuttering, massage techniques should be light, aimed at relaxation. Such massage should be performed on the muscles of the neck, back of the head, shoulder girdle, chest and lateral torso muscles.

The massage is performed in a warm, ventilated room. It is advisable to use dimmed lights and soft relaxing music. The person performing the massage should follow the rules of hygiene. Hands should be clean, warm, without scratches and signs of inflammation. Observing the patient's reaction to the massage movements allows you to adapt the technique and intensity of the massage to meet his or her needs.

The main massage method is stroking, which is a mandatory step at the beginning and end of each massage complex. During stroking, there is an increase in blood circulation in superficially located vessels, even in those vessels that are located at a distance from the area of massage and which are not currently under mechanical influence. There is also a decrease in muscle tone and a slowing of breathing, which indicates the processes of inhibition of the higher parts of the central nervous system and a decrease in excitability. Deeper and more vigorous stroking causes an activating reaction of the central nervous system.

Relaxation of the muscles of the articulatory apparatus begins with general muscle relaxation, which includes relaxation of the muscles of the arms, shoulder girdle, neck and chest muscles. The specialist then performs a relaxing facial muscle massage using light, gliding and soothing movements.

Superficial stroking is used to reduce the tone of the muscles of the articulatory apparatus, this is a gentle technique in which the specialist's palms are as relaxed as possible. Deep stroking is a more intensive method that affects the receptors of deeply embedded muscles and blood vessels. Vibration has different effects depending on the intensity and force of the movement. For example, light, superficial vibration, or tapping with your fingertips, helps to relax the muscles. Each massage session ends with stroking.
Studying the effectiveness of speech therapy massage can help improve correction methods and improve the quality of life of people with stuttering. Determining the optimal therapeutic approaches can help to address previously undiscovered aspects of the stuttering problem. Despite the availability of various methods of stuttering correction, it is not always obvious which one is optimal for a particular individual.

**Conclusions.** Speech therapy massage has a great potential to improve the functional state of speech muscles and reduce the symptoms of stuttering. The use of various massage techniques helps to relax the muscles of the articulation apparatus, reduce muscle tension and improve blood circulation. Speech therapy massage can be an effective complement to a comprehensive approach to stuttering correction, along with speech therapy exercises, therapy and other methods. An important component of the success of using speech therapy massage is the individualisation of the approach to each person, taking into account the manifestations of the disorder and the individual needs of the person.

**References:**