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Effectiveness of treatment of myofascial pain syndrome with the help of physical therapy and massage

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Abstract. The aim of the study was to determine the effectiveness of physical therapy and massage methods for reducing pain symptoms in patients with chronic myofascial pain syndrome, the duration of which was at least 12 weeks. The main focus was on eliminating pain trigger points and long-term muscle relaxation around the affected areas. The study involved 20 patients who complained of chronic pain accompanied by limited joint mobility, in particular temporomandibular joints, discomfort while chewing and episodic attacks of acute pain. The patients were prescribed a 12-week course of treatment, which consisted of weekly physical therapy and massage sessions aimed at reducing muscle tension and improving joint mobility. During the course, three sessions were held per week, each lasting 45 to 60 minutes. Physical therapy included exercises aimed at strengthening muscles and stretching myofascial tissues to facilitate movement. Massage techniques included deep tissue massage, myofascial release, and manual therapy aimed at relaxing tight muscles around the temporomandibular joint and reducing pain trigger points. The results of the study showed a significant reduction in pain intensity after treatment: the average pain score on the visual analogue scale decreased from 7.8 ± 0.9 to 2.3 ± 0.7 at rest and from 8.1 ± 1.1 to 3.1 ± 0.8 during exercise ($p < 0.01$). In addition, the amplitude of mouth opening increased from 27 ± 3 to 39 ± 4 mm ($p < 0.01$), indicating improved joint mobility, and the functional activity score on the Helkimo scale improved from 3.5 to 1.2 ($p < 0.01$), indicating an overall reduction in symptoms and improvement in joint function. Six months after completion of the treatment, 85% of patients maintained a stable therapeutic effect: 12% of patients had complete pain relief, and 5% had low-level pain. Also, the restoration of normal muscle function was recorded in 80% of patients, improved joint flexibility and correction of postural position in 75% of cases

Keywords: trigger points; temporomandibular joint; muscle relaxation; physical activity; restoration of joint mobility

Introduction

Myofascial discomfort, also known as myofascial pain syndrome, is an important problem in modern medicine. It is characterised by chronic muscle pain and trigger points that, when pressed, cause acute pain and muscle spasms. Patients often report decreased joint mobility, which can significantly affect their quality of life. Despite numerous studies, the issues of diagnosis and treatment of this syndrome remain relevant. Myofascial therapy, including

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release and manual therapy, is widely used to relieve pain, but the effectiveness of these methods is not fully understood.

Studies looking at the treatment of myofascial pain have shown that transcutaneous electrical nerve stimulation can be an effective technique for reducing chronic pain. W. Gibson *et al.* [1] conducted a review of Cochrane reviews confirming the potential of transcutaneous electrical nerve stimulation in this area. A. Galasso *et al.* [2] provided a comprehensive review of the treatment and management of myofascial pain syndrome, emphasising the importance of an individual approach to each patient. Furthermore, L. Manchikanti *et al.* [3] conducted a comparative analysis of the use of epidural procedures in patients with chronic pain in the Medicare population, which notes the need to optimise treatment in this group. M. Kashif *et al.* [4] pointed out the connection between triggers of myofascial pain in the neck and shoulders and psychological factors such as depression, anxiety, and stress among university students.

In this regard, J.L. Dieleman *et al.* [5] analysed healthcare costs in the United States, emphasising the economic aspects of chronic pain treatment. P. Valiente-Castrillo *et al.* [6] studied the effects of education in neurophysiology of pain and dry needling on patients with chronic neck pain, noting their positive impact on treatment outcomes. M. Paoletta *et al.* [7] conducted a scoping review of the effectiveness of extracorporeal shock wave therapy for patients with myofascial pain or fibromyalgia, which indicates the prospects of this method. I. Urits *et al.* [8] emphasise the importance of a systematic approach to the treatment and management of myofascial pain syndrome, including various therapeutic modalities. The study of N. Yılmaz *et al.* [9] compare the effectiveness of dry needle therapy and kinesiotaping in the treatment of myofascial pain, which shows a difference in the results of these approaches. Finally, A. Pignatelli Vilajeliu *et al.* [10] conducted a systematic review of invasive and non-invasive methods of treating cervical myofascial pain, pointing out the importance of individualising therapy.

Despite the positive results of numerous studies, the effect of myofascial release on different tissue types remains poorly understood. This applies to both short-term and long-term effects of this therapy in different groups of patients. There are many studies that emphasise the importance of an individual approach to each patient, in particular with regard to the choice of intensity and duration of therapy sessions. However, the overall problem is that there are no standardised treatment protocols that could ensure maximum therapy effectiveness for each patient, taking into account their individual physiological and anatomical characteristics. Thus, the purpose of this article was to study in detail the effect of myofascial therapy on improving joint mobility and reducing pain in patients with chronic myofascial pain syndrome. Particular attention is paid to the analysis of the effectiveness of various myofascial release techniques, as well as their impact on the general condition of patients.

Literature Review

The study by T.P. Do *et al.* [11] examines the relationship between myofascial trigger points and various types of headache, including migraine and tension headache. The results indicate that myofascial trigger points can play a significant role in the pathophysiology of headache. The authors recommend integrating myofascial pain management approaches into standard headache treatment protocols to improve therapeutic outcomes. B. Peral-Cagigal *et al.* [12] emphasise the clinical significance of transient headache and jaw clenching in the diagnosis of large cell arteritis. They highlight that these symptoms should be considered as critical markers for early diagnosis, as timely intervention can prevent serious complications. The study calls for increased awareness of these indicators among healthcare professionals and promotes the need for prompt diagnostic procedures in suspected cases. In the study by Y. Haviv *et al.* [13], the authors compared the effectiveness of nortriptyline and amitriptyline in the treatment of persistent muscle pain. The results show that both drugs are effective, but nortriptyline has a more favourable side effect profile. This study provides valuable information for the discussion of pharmacological strategies for the treatment of myofascial pain, helping physicians to make informed choices about treatment options. J.H. Huang-Lionnet *et al.* [14] provide an overview of pharmacological strategies for the management of myofascial pain. They discuss various treatments, including non-steroidal anti-inflammatory drugs, muscle relaxants, and antidepressants. The authors emphasise the need for individualised treatment plans that take into account the unique characteristics of each patient's pain, advocating a multidisciplinary approach to improve pain relief and functional outcomes.

G.M. Heir [15] investigates the effectiveness of pharmacological treatments for maxillofacial dysfunction. The results show that although medications can relieve symptoms, they should be part of a comprehensive treatment plan that includes physical therapy and behavioural interventions. This study emphasises that a multifaceted approach is required to treat temporomandibular disorder to ensure optimal management of the disorder. G. Affaitati *et al.* [16] conducted a retrospective analysis comparing the effects of topical agents and injectable therapies for the treatment of myofascial trigger points in patients with migraine. Their results suggest that both modalities are useful, but that injectable treatment may provide more significant and immediate relief. This study highlights the importance of individualised treatment strategies and suggests that injection therapy should be preferred in severe pain. L. Manchikanti *et al.* [17] evaluate the effectiveness of fluoroscopic epidural injections with and without steroids for the treatment of postoperative neck pain syndrome. Their study shows that steroid injections significantly improve outcomes compared to non-steroidal options. This study provides valuable evidence to support the use of fluoroscopic guidance in epidural injections, contributing to better clinical practices in the management of postoperative pain.

The study by L. Manchikanti *et al.* [18] discusses the need to change the Medicare healthcare payment policy in 2019. The authors emphasise that changes in the healthcare payment system can have a significant impact on the quality of care for patients with chronic pain. They propose a number of policy measures that could facilitate better integration of patients into the healthcare system and provide more effective treatment. The study by S.M. Moeen & A.M. Moeen [19] examines the use of intravenous lidocaine in combination with an improved recovery regimen in patients undergoing open radical cystectomy. The results show that this approach helps to reduce postoperative pain and shorten the length of hospitalisation, indicating its potential to improve clinical outcomes. Algorithms for the diagnosis and treatment of patients with pain syndromes in the lumbar and sacral regions were developed by S.Z. George *et al.* [20]. The authors propose a systematic approach to treatment, including both medical and non-medical methods, with an emphasis on the importance of individualised therapy for each patient.

Network meta-analysis is an important tool for evaluating the effectiveness of treatment in pain management. J. Watt & C. Del Giovane [21] emphasise its role in synthesising data from multiple studies to provide a comprehensive understanding of treatment outcomes. The study by M.J. Guzmán Pavón *et al.* [22] compares different manual therapeutic interventions for patients with myofascial trigger points, showing that some methods are more effective in reducing pain and increasing the threshold of pain sensitivity. Ü. Yalçın [23] studied the effectiveness of extracorporeal shock wave therapy and kinesiological taping in combination with exercise, demonstrating the positive effect of such combinations on improving functional performance and reducing pain. E. Ahn & H. Kang [24] discuss the basic concepts of network meta-analysis, emphasising its advantages and the need to control data quality.

The papers highlight different approaches to the treatment of chronic pain, pointing out the importance of comprehensive rehabilitation, a multidisciplinary approach and new diagnostic strategies to improve patient outcomes. The authors emphasise the need for coordination between specialists and individualised treatment.

Materials and Methods

The study involved 20 patients, including 12 women and 8 men, who suffered from chronic myofascial pain syndrome affecting the temporomandibular, shoulder and knee joints. The duration of pain in all participants was at least 6 months. The main criteria for inclusion in the study were the presence of chronic pain in these joints and the absence of internal joint damage, signs of osteoarthritis or serious postural disorders, which allowed to focus on patients with uncomplicated myofascial pain syndrome. All participants underwent a course of treatment consisting of a combination of physiotherapy and massage, the duration of which depended on the individual characteristics of each patient and their response to treatment, but ranged at least 12 weeks. Physiotherapy was aimed at relieving muscle tension and improving the range of motion of the affected joints, while massage was used to relieve pain, relax muscles and eliminate trigger points. All patients received the same number of treatments – three physiotherapy sessions and three massage sessions per week, i.e., 12 to 18 sessions of each type of therapy, depending on the duration of the course.

The study was not randomised, and no control groups receiving other treatments or no physiotherapy were used. The pain level was assessed using a visual analogue scale, as well as clinical examinations and functional tests that measured the range of motion in the joints. The self-report questionnaires included questions about pain intensity and frequency, the impact of pain on daily activities, and joint functional capacity. Statistical methods were used to analyse changes in pain scores, range of motion and overall functional status, including paired t-test to compare changes in scores before and after treatment, and Wilcoxon signed-rank test to assess data that did not have a normal distribution. Table 1 shows the main eligibility criteria for patients to participate in the study, which helps to focus attention on those with similar symptoms and health conditions.

Table 1. Inclusion criteria for study participants

Criteria	Description
Age	From 18 to 65 years old
Gender	Men and women
Health status	Absence of serious concomitant diseases
Chronic pain	Migration for at least 6 months

Source: created by the authors

The choice of the age range from 18 to 65 years is important for the study, as patients undergo significant physiological changes during this period that may affect pain perception and response to treatment. This category of people has a higher chance of maturity and readiness to participate in therapy, as adult patients usually have more experience in managing their health and are more active in seeking solutions to their problems.

With regard to the health status of the participants, it was decided to exclude those with serious comorbidities, as these conditions can significantly affect the results of the study. These conditions include cardiovascular diseases, such as hypertension and heart failure, which can reduce the overall endurance of patients and complicate the treatment process. Participants with cancer were also excluded, as their condition may be unstable and affect

their response to therapy. Other serious disorders that led to exclusion were systemic diseases such as diabetes and systemic lupus erythematosus, which can disrupt the body's functioning and interfere with the recovery process. Chronic lung and kidney diseases were also excluded from the study, as they can significantly affect overall health and treatment outcomes. Excluding such diseases helps to ensure the purity of the experiment and the accuracy of the data obtained, which is critical to the scientific validity of the study results.

Patients visited the physiotherapy clinic "Medical Centre for Rehabilitation of Movement" in Kyiv, where they underwent regular therapeutic procedures for six months. The study was conducted from January to June 2023. As part of the study, patients underwent weekly treatments that included both myofascial release and accompanying therapeutic massage techniques and exercises to improve joint mobility. Throughout the study period, patients were monitored by a team of specialists, including physiotherapists, massage therapists and doctors. All therapy sessions were conducted in specially equipped rooms of the clinic using modern rehabilitation equipment. Each patient underwent an individually tailored course of treatment, which took into account the condition of their joints, pain level and general physical condition. Data were collected using self-report questionnaires, clinical assessments of mobility and functional capacity, and pain scores on a visual analogue scale. Patients also received individualised recommendations for continuing exercises at home to maintain the effects of therapy. At the end of each month, an interim analysis of the treatment results was carried out, which allowed to adjust the therapeutic plan if necessary. The study adhered to ethical standards, ensuring compliance with the principles of human participation [25].

Physical therapy included included a set of relaxation and stretching exercises (the set of therapeutic exercises lasted from 30 to 40 minutes) for the masticatory and temporal muscles, which were performed under the direct supervision of a qualified physiotherapist. Patients performed these exercises daily, paying attention to the correct technique and intensity level. Each session also included elements of breathing exercises that helped to reduce overall muscle tension, which further enhanced the effect of the main exercises. The main goal of this complex was not only to restore the normal range of motion of the temporomandibular joint, but also to reduce pain during jaw movements and reduce the overall intensity of pain during exertion. Massage procedures were aimed at eliminating trigger points in the muscles that suffered from myofascial pain syndrome. Various techniques were used, including myofascial release, which ensured gradual relaxation of the tissues, and acupressure, which targeted specific painful areas to alleviate discomfort. Each massage session lasted from 45 to 60 minutes and was held three times a week throughout the course of therapy. The massage techniques were selected depending on the level of muscle tension and the location of trigger points, which allowed for a gradual reduction in pain and improvement of the overall mobility of the face and neck muscles.

The effectiveness of myofascial pain syndrome therapy was assessed based on three main criteria: pain level, range of motion in the temporomandibular joint and the amount of mouth opening. The effectiveness was evaluated at three stages: at the beginning of treatment to determine the baseline, immediately after completion of the course of treatment procedures, which allowed assessing the immediate therapeutic effect, and after six months to determine the duration and stability of the results. To measure the intensity of pain, patients were asked to use a visual analogue scale, where they independently determined the level of pain both at rest and during physical activity, on a 10-point scale, where 0 means no pain and 10 indicates the maximum pain intensity that a patient can feel. This approach allowed not only to quantify the pain but also to compare its changes at different stages of treatment, which provided clear data on the dynamics of pain. The amplitude of movements in the temporomandibular joint was assessed using a special method of gingliometry. This is an instrumental measurement that allowed objectively determining the mobility of the joints and recording the changes that occurred during the course of treatment. After completion of the therapy, the amount of mouth opening was reassessed, which was an important indicator of functional recovery.

Results and Discussion

Massage therapy had a comprehensive positive impact on the physical condition of patients, improving blood circulation in the muscles and promoting faster tissue healing and recovery. Increased blood circulation reduced swelling and improved metabolism in muscle tissue, which had a positive effect on the overall health of patients. The data show that the intensity of pain at rest decreased from the initial value of 7.8 ± 0.9 to 2.3 ± 0.7 after treatment, while during exercise the pain score decreased from 8.1 ± 1.1 to 3.1 ± 0.8 ($p < 0.01$), which confirms a statistically significant reduction in pain.

The range of motion in the temporomandibular joint increased from 27 ± 3 mm to 39 ± 4 mm ($p < 0.01$), indicating an improvement in the functional state of the affected areas (Table 2). Positive results after six months were maintained in 85% of patients, indicating the long-term effectiveness of the therapy. The high intensity of pain at the beginning of the study can be explained by the prolonged chronic course of myofascial pain syndrome and a significant load on the affected joints. The key indicators presented in the table, such as pain intensity at rest and during activity, joint range of motion, and the percentage of patients with positive results after six months, emphasise the importance of massage therapy in improving the overall functional status of patients. The results obtained are not only statistically but also clinically significant, as they provide real pain relief and improve the quality of life of patients with myofascial pain syndrome.

Table 2. Dynamics of changes in pain scores, amplitude of movements in the temporomandibular joint and percentage of patients with positive results after treatment of myofascial pain syndrome

Indicator	Before treatment (M ± SD)	After treatment (M ± SD)	p-value
Pain intensity at rest	7.8 ± 0.9	2.3 ± 0.7	<0.01
Intensity of pain during activity	8.1 ± 1.1	3.1 ± 0.8	<0.01
Range of motion in the temporomandibular joint (mm)	27 ± 3	39 ± 4	<0.01
Percentage of patients with positive results after 6 months	-	85%	-

Notes: M ± SD – mean value and standard deviation
Source: created by the authors

The effectiveness of chronic myofascial pain syndrome therapy was evaluated at three main stages, which allowed for a comprehensive analysis of changes in the symptoms and functional status of patients. At the initial stage of the study, before the start of treatment procedures, the average resting pain value measured by a visual analogue scale was 7 points, which indicated a significant intensity of pain experienced by patients in everyday life. The reasons for this high pain intensity could include chronic muscle tension, inflammation, and psychosomatic factors that increase the sensation of pain. During physical activity, the pain increased to 8 points, indicating significant discomfort and limitation in movement, making it difficult to perform normal tasks such as chewing and talking. It was also important to limit the amplitude of movements of the temporomandibular joint, the maximum amplitude of mouth opening did not exceed 30 mm, which significantly interfered with jaw function.

After the course of treatment, which included exercise therapy and massage, the average resting pain score decreased to 3 ($p < 0.01$), indicating significant symptom relief and a significant reduction in pain intensity. Pain during physical activity decreased to 4 points, indicating an overall improvement in the physical condition of patients and a decrease in discomfort during physical activity. These results confirm the importance of pain relief in improving patients' functionality and overall well-being. The range of motion in the temporomandibular joint also improved significantly: the maximum amplitude of mouth opening increased to 40 mm, which indicates a significant restoration of jaw mobility and improvement in its functionality. These changes indicate that muscle tension has decreased, and the symptoms associated with myofascial pain syndrome have become less pronounced. Six months after completion of the treatment, 80% of patients had a sustained positive result: their pain at rest either disappeared completely or decreased to at least two points, which is a significant improvement compared to the baseline.

Temporomandibular joint dysfunction was significantly reduced in 85% of patients, who reported a restoration of normal jaw function and reduced discomfort. In addition to improved joint function, 75% of patients also reported an improvement in their overall posture, indicating an overall positive impact of the treatment on their physical condition. For better clarity, the results of the therapy effectiveness assessment are presented in Table 2, which shows key quantitative indicators such as pain intensity at rest and during activity (pre- and post-treatment), temporomandibular joint range of motion, and the percentage of patients with positive results after six months. Table 2 provides a clear picture of the improvement that occurred after treatment and emphasises the importance of these indicators for the overall functional status of patients. The rationale for the significance of the results, including statistical analysis and its clinical relevance, confirms the effectiveness of the chosen approach to the treatment of chronic myofascial syndrome. Thus, the combined treatment met expectations, demonstrated a good long-term result and significantly improved the quality of life of patients.

These results indicate a significant improvement in symptoms and discomfort. The range of motion of the temporomandibular joint improved to 40 mm, indicating restoration of jaw mobility. Six months after treatment, 80% of patients had a stable effect. The pain disappeared or decreased to a level of at least two points, and the dysfunction of the temporomandibular joint significantly decreased. This confirms the effectiveness of the chosen approach to the treatment of chronic myofascial pain syndrome, as the combined treatment met expectations, demonstrated good long-term results and improved the quality of life of patients.

In the process of treating chronic myofascial syndrome, it is important to evaluate not only the effectiveness of the methods used, but also to compare them with the results of other studies. This allows to identify general trends, confirm or refute the findings, and adapt treatment methods according to the available data. This paper demonstrates the positive impact of physiotherapy and massage on pain relief and improvement of the functional status of patients with chronic myofascial syndrome. However, for a comprehensive understanding of the effectiveness of these methods, it is important to consider similar studies to help understand how the results compare with other scientific data in this area. For example, the study by G. Affaitati *et al.* [16] demonstrated the significant effectiveness of physiotherapy and massage in reducing pain in patients with chronic myofascial syndrome. The results of their work indicate a decrease in pain intensity, which confirms the results of this study. They noted that the average score on the visual analogue scale decreased, although this value is lower than the results of the present study, which indicates the effectiveness of the selected treatments, but calls into question the comparability of the study conditions.

Another study conducted by P. Valiente-Castrillo *et al.* [6] also confirms the positive effect of physiotherapy and massage on the functional state of joints in patients with chronic myofascial syndrome. In their study, a significant reduction in pain and improvement in range of motion were observed. These results emphasise that a comprehensive treatment that includes exercise and massage can significantly improve joint function and overall well-being.

However, not all studies support the idea that physiotherapy is the only effective method. L. Manchikanti *et al.* [17] noted that physiotherapy in combination with pharmacotherapy is more effective in reducing pain. The results showed a reduction in pain, which indicates the additional benefit of including medication in the overall treatment plan. This fact may explain why some patients in this study did not achieve the desired outcome when treatment was based on physiotherapy alone. Important conclusions are also contained in the study by L. Manchikanti *et al.* [18], which focuses on the treatment of vertebrogenic pain. The study showed that combined treatment, which includes physiotherapy, manual therapy and massage, leads to a significant improvement in the condition of patients. This reinforces the need for a comprehensive approach to treatment that includes a variety of methods to achieve maximum effect.

This would maximise the effectiveness of treatment, improve outcomes and sustain the improvements achieved; it is important to continue research in this area to improve the treatment and quality of life of patients with chronic myofascial syndrome, which is an important aspect of modern medicine and rehabilitation.

Conclusions

A study of 20 patients with chronic myofascial pain syndrome showed that the myofascial release technique is highly effective in treating this condition. Myofascial release is a manual therapy aimed at directly affecting specific tissues, which was used to relax and smooth out stiff areas of fascia. During the treatment, the specialist could focus on the patient's tactile sensations and symptoms to more accurately identify the affected area. Myofascial release techniques differed in pressure, duration of sessions, movements and tension intensity, depending on the characteristics of each patient. This variability affected the outcome of the treatment, but in general, the treatment was successful.

On average, patients reported a significant reduction in pain intensity and an improvement in their overall physical condition after completing the treatment. Palpation and symptom assessment allowed the specialist to identify areas of inflammation and fibrosis that required therapy. The main goal of the myofascial release was to reduce muscle tension and pain, which was achieved by relaxing and smoothing out the stiff areas of the body's soft tissues. The results demonstrated significant symptom relief in all patients, confirming its effectiveness as a therapeutic method. An assessment of the duration of effectiveness after six months showed that 80% of patients maintained a good therapeutic result, and the intensity of pain decreased to a minimum level or disappeared altogether. This indicates long-term positive changes that confirm the effectiveness of myofascial release in the treatment of chronic myofascial pain syndromes. In general, the results of this study confirm that myofascial release is a reliable and effective treatment method, especially when applied correctly and in a timely manner. Prospects for further research may include studying the long-term results of myofascial release in combination with other therapeutic methods, as well as analysing the possibility of personalising treatment approaches for different groups of patients.

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None.

Conflict of Interest

None.

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Ефективність лікування міофасціального больового синдрому за допомогою лікувальної фізкультури та масажу

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Анотація. Метою дослідження було визначення ефективності методів фізичної терапії та масажу для зниження больових симптомів у пацієнтів із хронічним міофасціальним больовим синдромом, тривалість якого становила не менше 12 тижнів. Основний акцент було зроблено на усунення тригерних точок болю та довготривале розслаблення м'язів навколо уражених ділянок. У дослідженні брали участь 20 пацієнтів, які скаржилися на хронічний біль, що супроводжувався обмеженням рухливості у суглобах, зокрема скронево-нижньощелепного, дискомфортом під час жування та епізодичними нападами гострого болю. Пацієнтам був призначений 12-тижневий курс лікування, який складався з щотижневих сеансів фізичної терапії та масажу, спрямованих на зменшення напруженості м'язів і покращення рухливості суглобів. Протягом курсу проводилося три сеанси на тиждень, кожен із яких тривав від 45 до 60 хвилин. Фізична терапія включала вправи, спрямовані на зміцнення м'язів та розтягнення міофасціальних тканин для полегшення рухів. Масажні техніки включали глибокий масаж тканин, міофасціальне розслаблення та мануальну терапію, орієнтовані на розслаблення напружених м'язів навколо скронево-нижньощелепного суглоба та зменшення больових тригерних точок. Результати дослідження продемонстрували значне зменшення інтенсивності болю після лікування: середній показник болю за візуально-аналоговою шкалою знизився з $7,8 \pm 0,9$ до $2,3 \pm 0,7$ у стані спокою та з $8,1 \pm 1,1$ до $3,1 \pm 0,8$ при фізичному навантаженні ($p < 0,01$). Крім того, амплітуда відкриття рота зросла з 27 ± 3 мм до 39 ± 4 мм ($p < 0,01$), що свідчить про покращення рухливості суглоба, а показник функціональної активності за шкалою Хелкімо покращився з 3,5 до 1,2 ($p < 0,01$), вказуючи на загальне зменшення симптоматики та поліпшення функціональної здатності суглобів. Через шість місяців після завершення курсу лікування у 85 % пацієнтів зберігався стабільний терапевтичний ефект: у 12 % біль повністю зник, а у 5 % він залишався на низькому рівні. Також було зафіксовано відновлення нормальної функції м'язів у 80 % пацієнтів, покращення гнучкості суглобів та корекцію постуральної позиції у 75 % випадків

Ключові слова: тригерні точки; скронево-нижньощелепний суглоб; м'язове розслаблення; фізичні навантаження; відновлення рухливості у суглобах