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## Ocena skuteczności masażu klasycznego w zespołach bólowych kręgosłupa – przegląd literatury

### Evaluation of effectiveness of classical massage in spinal pain syndromes – literature review

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**Słowa kluczowe:** masaż klasyczny, zespoły bólowe, przegląd literatury

**Key words:** motivation, physical activity, literature review

**Streszczenie.** Zespoły bólowe kręgosłupa są często spotykane nie tylko u osób starszych, ale także często występują u osób coraz młodszych. Są to różnego rodzaju choroby nie tylko kręgosłupa, ale również tkanek miękkich, mięśni przykręgosłupowych oraz ich przyczepów, z tendencją do nawrotów bólu. Powstawanie zespołów bólowych powiązane jest z patologią krążków oraz stawów międzykręgowych kręgosłupa. Przed przystąpieniem do leczenia na pierwszym miejscu należy poznać genezę bólu, oraz jego objawy. Należy także uwzględnić choroby współistniejące u badanego pacjenta. Wśród metod leczenia zespołów bólowych wyróżnia się zabiegi z zakresu fizykoterapii, kinezyterapii oraz elementy dodatkowe, tj. terapia manualna czy metody neurofizjologiczne. Równie ważna jest edukacja pacjenta na temat profilaktyki, czyli reedukacja na temat wykonywania czynności dnia codziennego, która jest podstawą do zapobiegania nawrotom choroby lub do jej całkowitego wyeliminowania. Celem pracy było określenie skuteczności masażu klasycznego w zespołach bólowych kręgosłupa. W pracy przedstawiono różne formy rehabilitacji, jednak główny nacisk położono na ocenę skuteczności masażu klasycznego w wybranych jednostkach chorobowych. W badaniach stwierdzono pozytywny wpływ masażu na cały organizm człowieka, dowodząc, iż niweluje on występujące dolegliwości bólowe kręgosłupa, a także zwiększa jego ruchomość we wszystkich płaszczyznach, co skutkuje poprawą jakości życia codziennego.

**Summary.** Summary. Back pain are often found not only in the elderly, but also often occur in people younger and younger. There are all sorts of diseases, not only the spine but also the soft tissue, paraspinal muscles and their attachments, with a tendency to recurrence of pain. Formation of pain syndromes is

associated with the pathology of intervertebral discs and joints of the spine. Prior to treatment in the first place need to understand the genesis of pain and its symptoms. It should also be considered co-morbid conditions in a test subject. Among the methods of treatment of pain syndromes stand out treatments in the field of physical therapy, physiotherapy, and additional elements, ie. Manual therapy and neurophysiological methods. Equally important is the patient education about the prevention of, or re-education on how to perform activities of daily living, which is the basis for the prevention of recurrence of the disease or its total elimination. The aim of the study was to determine the efficacy of classical massage spinal pain syndromes. The paper presents various forms of rehabilitation, but the main emphasis is on the assessment of the effectiveness of classical massage in selected disease entities. The studies found positive effects of massage on the human body, proving that it eliminates common back pain, and increases its mobility in all planes, which results in improving the quality of everyday life. However, the main emphasis is on the assessment of the effectiveness of classical massage in selected disease entities. The studies found positive effects of massage on the human body, proving that it eliminates common back pain, and increases its mobility in all planes, which results in improving the quality of everyday life.

### **Introduction**

Back pain has become an epidemic of our time. According to literature data, these complaints are from 50 to 90% of the population ages, more and more younger people touching and leading to significant physical limitations, reducing quality of life. Factors that predispose to the emergence of ailments of the spine are m.in .: nature of the job, lifestyle, overweight, lack of physical activity, drugs and stressful life situations. In the treatment of pathologies such use many forms of therapy. The most common preventive recommendations are introduced, lifestyle as well as various types of physiotherapy treatments. One of them is a classic massage, which is used more often in people with spinal pain syndrome, giving satisfactory clinical effects. A massage helps to normalize the resting tension of the muscles, and the range of motion of joints, has a beneficial effect on the cardiovascular system, thus nourishing the tissue by providing them with more oxygen and nutrients. Otherwise contributes to rapid regeneration of tissues, it stimulates the cerebral cortex through a positive effect on the sensory receptors deep and superficial, located in the soft tissues, normalize the work of internal organs. By toning effect on the nervous system, massage also has a significant impact on the mental state of the patient, it further loosening and relaxing [1].

### **The genesis of back pain**

The actual spine defects are responsible for the pain in only 15%. The remaining 85% is usually weak musculature of the back picture of lack of preservation of ergonomics of work [2]. One of the most common causes of the back pain is intervertebral discs. This happens because people are increasingly opting for a sedentary lifestyle, do not take any effort or minimize it, which increases the weight, so the weight

of muscles and bones. This disease arises from dehydration intervertebral discs or sudden injury. Disruption of the structure of the outer roller will bulge or part of the nucleus pulposus, in critical situations, as the complete interruption of the annulus fibrosus. The resulting hernia usually pinches the soft tissue around, ie. The core or core roots. Discectomy patients may experience not only sharp, often radiating pain, but also muscle contraction. Symptoms depend on the location of the damage and may be characterized by: a local pain, for example. Neck. between the shoulder blades and the lumbar spine, pain positioned behind the bridge surrounding the chest, which may be confused with myocardial infarction, headache (confused with migraine), numbness or tingling often radiating distal to the upper extremities or lower extremities (sciatica / arm) burning sensation in the vicinity of the neck, the spine between the shoulder blades, and, a feeling of stiffness of back muscles, weakness or paralysis. Dehydrated intervertebral disc no longer fulfills its function, which is not a good cushion for the vertebrae, resulting in degenerative changes frequently, so it is important to detect the disease at an early stage and quickly start her treatment headache (migraine confused), numbness or tingling often radiating distal to the upper extremities or lower extremities (sciatica / arm), burning sensation in the vicinity of the neck, the spine between the shoulder blades, and, a feeling of stiffness of back muscles, weakness or paralysis. Dehydrated intervertebral disc no longer fulfills its function, which is not a good cushion for the vertebrae, resulting in degenerative changes frequently, so it is important to detect the disease at an early stage and quickly start her treatment headache (migraine confused), numbness or tingling often radiating distal to the upper extremities or lower extremities (sciatica / arm), burning sensation in the vicinity of the neck, the spine between the shoulder blades, and, a feeling of stiffness of back muscles, weakness or paralysis. Dehydrated intervertebral disc no longer fulfills its function, which is not a good cushion for the vertebrae, resulting in degenerative changes frequently, so it is important to detect the disease at an early stage and quickly start her treatment[3].



Figure 1. Hernia radial view of the spine at the L3 / L4 [4].

Nociceptive sensations in the spine or tissues at the back of the spine, the cause of which can be varied is called spinal pain syndrome. This is a serious consequence of disorders and dysfunctions not only in the spine but also in the tissues surrounding the spine, peripheral joints, dysbalansie muscular or other disorders, ie. Internal organs. There are several reasons that cause back pain. One of them is a recurring mechanical factor, leading to overload the spine, as well as other structures anatomically and functionally connected to one another. Factors that may cause functional changes are temporary, for example. Voltage changes in muscle or of a permanent nature, which usually leads to irreversible already osteoarthritis.

There are many causes of back pain. They can be congenital, but this rarely happens; most often they occur in the course of our lives.

To organic causes we can include: genetically weakened muscles and joints, and not good enough functioning tissue, hormonal disorders of bone metabolism, menopause, diseases of internal organs, the disease area of the jaw and teeth, stimulants, negatively affecting our body addiction, scars, congenital deformation, disease immunological and metabolic, overweight, lack of exercise, repetitive overload, long-term sitting posture during the day, physical work load on the body, spinal injury [2].

The factors include m.in .: mental stress, depression, psychological burden, fear and panic. It is not always the cause of the pain can be determined with absolute certainty. The spine should be considered holistically, like for example. Metabolism and cardiovascular system. Because of its size and position may be subjected to multiple factors, such as diseases of the internal organs.

The most common causes of back pain can also include: degenerative changes, birth defects and malformations, trauma and microtrauma, overloading, mechanical causes, inflammation, infections [2].

### **The use of massage in reducing back pain.**

Massage is a therapeutic procedure, consisting in the elastic deformation of the tissues massaged without changing their structure. It is carried out in order to improve the psychophysical condition of the patient. Exerts not only a topical analgesic, but also a general road through the activation of the reflex [5].

The masseur is one of the members of the rehabilitation unit which, by reflex stimulation of the cardiovascular system and the application of direct stimulation of the tissues supporting the process of combating pain. Massage also results in a reduction in the doses of analgesic the patient, reducing the risk of side effects. Most of the funds available at pharmacies exhibit some undesirable. Massage can provide transient relief of moderate pain symptoms that are associated with everyday life, stress, which reduces the need to use drugs or completely eliminate them. You need to consider what kind of pain with which we are dealing. Therapeutic approach is somewhat different in the case of acute and chronic pain. "Interventions aimed at combating acute pain are usually less invasive (...) and focus on supporting the regeneration processes. Chronic pain is subjected both symptomatic therapy, and more aggressive treatment seeking to elicit specific changes in the systemic therapy "[5]. During the procedure, a massage affects many mechanisms associated with pain. You can see a change in the level of neurotransmitters that cause long-lasting inhibition or maintenance of nociceptive sensations. Substances, which are among the group that inhibit pain is a whole class of endorphins, GABA (gamma-aminobutyric acid), serotonin and dopamine. The group of reinforcing pain sensations count as adrenaline, noradrenaline and cortisol. Massage affects the central and peripheral nervous system, both as part of the autonomic and somatic. Because pain can occur as a result of bad blood supply of tissues (sensitization), remember that massage exerts a huge influence on the normalization of blood flow both in the arteries and in veins. In addition, massage gives the patient a sense of security,

For massage in the form of healing it is considered one in which actions are deliberately used to treat existing diseases, minimizing pain or to prevent them. Selection of the appropriate massage to the patient depends on many factors, i.e. :age, sex, health status, body weight, type of disease, target a massage. When performing a massage therapist adjusts the degree of pressure on the tissue, and the duration of the stimulus, since only by observing the reaction of the tissue can be established which corresponds to massage the patient most [6]. The most common therapeutic massage include: classic massage, segmental massage, tensegracyjny massage, lymphatic drainage, deep tissue massage, acupressure, massage connective, centryfugalny massage, ice massage therapy, musculo - fascial trigger points.

Classic massage is one of the most popular massage treatments. Used in almost any rehabilitation. It consists of eight techniques: stroking, rubbing, kneading,

tribulations, percussion, vibration, spreading and rolling. It is a very interesting experiment, because by the selection of strength, pace, and techniques you can get different effects:

- relaxing effect - is obtained when the massage is performed along the muscle fibers,
- stimulating effect - massage performed across the muscle fibers.

Gently performed can also unwind or relax the patient. Its implementation is required a lubricant, and the direction of movement is performed along the venous blood flow, i.e. towards the intracardiac [6].

### **The scientific evidence on the effectiveness of massage in spinal pain syndromes.**

To demonstrate and evaluate the effectiveness of massage in selected disease entities performed various studies on groups of people who suffer from back pain. The study presents both classical massage and its other forms.

Massage is one of the most effective treatments that prevent ailment pain and sometimes serious pathologies of the spine. With it you can minimize the effects of different factors that trigger pain. Body massage acting on different types of soft tissue may enhance metabolism and accelerate the flow of blood and lymph. Examination of tissue, performed during the massage helps to normalize, and even eliminate dysfunction even before the advent of the trigger points. It affects the correct posture, to some extent, by adjusting it, and influences the movement patterns which are present in physical activity as well as in everyday life. It goes also to balance the activity of the opposing parts of the autonomic nervous system and proper respiratory function [5].

Table 1. Overview of selected publications demonstrating the effectiveness of massage in spinal pain syndromes.

Author	The type of surgery performed	The area covered by the procedure	Study group	Number / time treatments
Cwirla A.	Medical massage	Spine muscles, shoulder girdle	59 people (31 women, 22 men), mean age 42 years	10 series of massage treatments
Cwirla A.	Aromatherapy massage	Spine muscle	50 people, average age	10 series of massage

			40 years	treatments
Wilk I.	Massage	The muscles of the back, upper limb girdle muscles, the muscles of the right leg	1 woman, 65 years old, from lumbar back pain-it with a feeling of drawing around the buttocks and thighs	8 series of massage 45 min
Wilk I.	Therapeutic massage - classic massage	Spine - paraspinal muscles	1 female, 49 years	The massage is performed every second day after 30 min
Marcinkowski J., M. Chochowska	Classic massage, Vibrating trigger points	Spine - paraspinal muscles	ZBK 100 people from the lumbar and co-existing diseases-I	10 a series of massage treatments every other day, 20 min (classic), and 10 sets of massage treatments every other day, 12 min (vibration)
Kałużna A., et al.	Classic massage	Spine - spinal muscles, back muscles	80 people, average age 51 years	10 series of classic massage treatments
Topolska M., et al.	Therapeutic massage, combined with a range of treatments of physiotherapy	Spine - the back muscles, the area of the cervical muscles of the shoulder girdle	30 people, average age 62 years with cervical ZBK	10 - 15 days rehabilitation
Musielak. B. Bąkowski P., et al.	Sports massage - classic	Upper limb	15 healthy men	Time 15 minutes
Boguszewski D., et al.	Classic massage	Around the neck, trapezius muscles	18 women	5 series of massage treatments, after 30 minutes

Therapeutic massage aims at relaxing the strained tissue and helps to get rid of waste products from the body and facilitates the regeneration process. By toning effect

on the nervous system has a positive effect on well-being of the patient.

Ćwirlej research team conducted a survey, which had a population of 59 people, including 31 women and 22 men with an overload of pain. In 66% of patients the pain was located in the lumbar spine at 60% in the thoracic and, in the rest, ie 47% of the cervical. The pain of a root of the radiation to the lower limb occurred in up to 51% of the group, and after the massage number decreased to 2%. After application of the massage obtained a significant reduction in pain by more than 4 points in the Hall VAS also give improvements in mobility of all segments of the spinal column [7].

There are many massage methods, and one of them is aromatherapy massage, using essential oils, which may further relax the patient.

Ćwirlej the research team performed a study which was designed to confirm or refute a hypothesis about the difference in the operation of classical massage and aromatherapy. The study group comprised 50 patients (28 women, 22 men), who suffered from back pain for an overload in the thoracolumbar - lumbar and lumbosacral - cross. At 24, a mixture of aromatherapy oils and the residue was massaged with conventional lubricants. Performed techniques did not differ from each other. The average age was about 40 years, 80% of people involved in jobs of a sitting, and 64% were overweight. The majority of respondents back pain intensified throughout the day, usually in a sitting or standing position. In 80% of the pain had character root that is radiated to the buttock area or the entire lower extremity, in the rest of it was just pain in your area. After a series of 10 massage with essential oils there was a complete disappearance of pain in the paraspinal 66% of patients, the pain was completely reversed in 33% of patients. Patients undergoing classical massage, complete pain relief 38% of the subjects reported less pain and 61% of patients. Improved mobility of the spine is similar in both cases. [8] complete relief of pain reported 38% of the subjects and the pain relief was 61% of patients. Improved mobility of the spine is similar in both cases. [8] complete relief of pain reported 38% of the subjects and the pain relief was 61% of patients. Improved mobility of the spine is similar in both cases. [8]

Wilk conducted a study on the effectiveness of tensegraphic massage, who performed on women aged 65 years reporting the pain around the lumbar spine, intensifying during flexion and extension movements of the trunk. Moreover, it accompanied by a pulling sensation at the height of the buttocks and the back of the right thigh. Pain between the shoulder blades has also performed in a sitting position. There have been initial stage of osteoarthritis in the lumbar region. Therapy consisted of



a series of 8 treatments massage, 2 times a week for 45 minutes. The resulting reduction of pain by 7 points in the VAS for the lumbar and pelvic girdle and 5 points in the vicinity of the shoulder girdle and the upper spine [9].

Wilk also carried out a study on the efficacy of classical massage, lymphatic drainage and tensegraphic massage, in which a woman participated in the age of 49, complaining of chronic pain in the lumbar spine and paroxysmal sharp pains in the cervical. MRI showed cervical degenerative changes, above all, to straighten the physiological lordosis of the neck simultaneously protuberance disc and osteophytes. At the level of the lumbar spine showed a slight wypukliny and degenerative intervertebral discs. The evaluation also noted oglądowej asymmetric position of the head (tilt to the right while turning left) and swelling on the left foot, lower leg covering. Rating palpation revealed excessive muscle tension, back and shoulder girdle. The patient has undergone surgery classical massage of the back, the whole body tensegraphic massage and lymphatic drainage of the lower limb. Before examining checked VAS pain scale. Before the massage pain in the cervical area reached 6 points in the VAS and lumbar 4 VAS. The nature of pain in the neck was sharp, paroxysmal, radiating to the head, and lumbar pain was constant, chronic and ćmiący. In addition to the VAS pain scale a measurement sensitivity of compression before and after the treatments were applied to the data muscles: latissimus dorsi, trapezius and charger back. After a series of classic massage treatments reported: reduction of pain in the lumbar region to 2 points in the VAS and neck to 4 points in the VAS. After a series of massage treatments tensegraphic massage a reduction of pain in the lumbar region to 0 in the VAS scale and a reduction in pain of the cervical spine to 2 on the VAS scale. After application of both forms of compression massage sensitivity is reduced [10].

Marcinkowski, including research team conducted the study, which involved 100 people (60% women, 40% men), mean age approximately 71 years, with chronic pain syndrome in the lumbo - sacral. The majority (88% of respondents) were also comorbidities: hypertension, diabetes, asthma, osteoarthritis of the spine, kidneys and bladder. In 54% of the measurement index BMI was normal, 30% overweight was detected in the remaining, 16% - obesity. After the procedure, classical massage treatments performed vibrating massage trigger points. Pressure with a vibration of 24 points on the back, equally on both sides of the body. Before and after therapy, subjects were pain assessed by the VAS scale. After applying the treatments massage pain levels decreased from 4.6 to 2.8 before therapy VAS after treatment.

Kałużna, along with the research team conducted a study concerning the assessment of the efficacy of classical massage. The study group consisted of 80 subjects (57 women and 23 men), at an average age of 51, with chronic pain symptoms in lumbo - sacral spine without radiation to the lower extremities. In the test group, only 15% of subjects had normal BMI. Before the therapy was performed the following functional tests: test-type fingers - floor test, Otto Schober test and rating scale of pain VAS. Before performing treatment 42.5% of identified pain 5 points in the VAS, 18.75% 6 points, 16.25% 4 11.25% 7 6.25% 8 2.5% 3 points, 1.25% to 1.25% and 9 out of 10 points on the VAS. After passing a series of massage 57.5% identified their pain at 2 points in the VAS, 22.5% did not feel pain, 3.75% at 1, 3, 4 and 6 points, 7 to 2.5%, 1.25% to 5 and 1, 25% at 9 in the VAS. After the classic massage treatments also noted a positive impact on the mobility of the spine and the quality of movement, confirmed by tests fingers - floor, and Otto Schober. Classical massage has a positive effect on reducing pain and contribute to the improvement of the functional status of the patient [12].

Topolska, and the research team conducted a study in a group, numbering 60 people, with an average age of 62.8 years, the pain of the cervical spine, diagnosed with degenerative changes and discopathy. The study was designed to evaluate the efficacy of therapeutic massage in combination with physiotherapy and kinesitherapy. The group was divided into two equal parts, one of which was subjected to only the rehabilitation of physiotherapy and physiotherapy, while the second group was also included therapeutic massage treatment. The recommended rehabilitation program was selected for each individually and included a variety of physiotherapy treatments, applied to the cervical. After passing the complete rehabilitation of a significant improvement in both groups. In both groups we had a decrease in pain as measured by VAS. However, the difference between the group, where the use of therapeutic massage, and a group which is used only physical therapy and kinesitherapy was negligible. Regardless of the treatment used the results were comparable. In people who have had pain in the cervical, it could not be considered that therapeutic massage is a factor that gives immediate results in the treatment of pain (measured by VAS), and only a complement to therapy. The study, however, demonstrated that this massage gives a significant impact on the range of motion of the spine in all planes [13]. the therapeutic massage is a factor that gives immediate results in pain (measured by VAS) and only complements the treatment. The study, however, demonstrated that this massage gives a significant

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Musielak, together with the research team conducted a study, which involved 14 healthy men without injuries to the upper extremities. The aim of the study was to examine the effect of massage on exercise-induced muscle pain, range of motion and swelling. The study model was used to compare the hand-arm, which meant that one arm of the test were subjected to massage and the other a control group. Each subject underwent measurements taken 10 minutes before exercise and subsequently 6, 12, 24, 36, 48, 72 and 96 hours after the effort made. Soreness muscles was assessed using the GPRS (Graphic Pain Rating Scale), the graphics scale measuring pain. The study group performed at the beginning of a series of 4 (10 reps with 1 minute interval) exercise of an eccentric load of the elbow joint. After waiting half an hour after exercise, masseur doing 15-minute sports massage treatment, based on the classic massage. The included massage techniques: stroking, rubbing, kneading, vibration, spreading, rolling. Delayed onset muscle soreness due to physical exertion (DOMS) is characterized by the presence of symptoms after 24 hours of exercise. It has been proven negligible impact sports massage for the pain associated with DOMS. Sports Massage delayed pain symptoms occurring after exercise [14].

Boguszewski, together with the research team published a study on the efficacy of classical massage - Swedish, which involved 18 women with an average age of about 26 years. The subjects were subjected to bursts of 5 treatments of classical massage, relaxation neck, and more specifically the back trapezius muscle. The value of the measured pressure, compared with the measurement before surgery reduced after a single treatment, but before the first, compared with the last treatment, this value significantly increased. Diastolic blood pressure was, however, during each series of the same. There was a positive difference in the flexion of the cervical (11 patients) and extension (16 patients) after the first treatment. Also reported a significant difference in the side folds, wherein an improvement of 0,55cm in relation to the measurement before the massage [2]. Among the respondents made the biggest problem lumbar (66%), followed by thoracic (60%) and neck (47%). After a series of massage pain improved significantly [15].

## **Summary**

Back pain is a very general concept that lie behind even hundreds of other specific diseases, worsening lives of many people. To fight them you have to sometimes go a long way to full health or improving the quality of life before the illness. Before starting treatment extremely important and fundamental issue is properly chosen and accurate diagnosis, which is the foundation for further work with the patient. There are many methods of treatment of back pains. Physiotherapy offers patients a wider and wider field of treatment, with the progress and development of medicine. Physical therapy, physiotherapy and massage therapy are elements of the whole, which is composed of. To treatment went quickly and smoothly treatments should diversify and adapt them to progress, which performs sick.

There are many forms of massage, starting from the classical, the medicinal and segmental tensegracyjny. It has been proven positive effect of massage on the human body and its various tissues. With the massage same flow advantages, because in addition to relaxation of strained muscles or to strengthen the weakened also influences positively to all the systems, ie. On the cardiovascular system, accelerating the blood flow together with oxygen and nutrients the body purified by accelerating the elimination of metabolic waste products. It has a beneficial effect not only on the physical aspects, but also improves mood, comfort and mental state of the patient. Massage alone will not cure, but more serious injuries and illnesses. Used in set with other procedures in the field of physical therapy and physiotherapy, and sometimes neurophysiological methods, eg. With manual therapy, can have a beneficial effect on the body - complementary and complementary treatment. An equally important aspect in the treatment of pain is prevention analgesic and patient education on disease prevention and back pain. Proper re-education can have a beneficial effect on improving the quality of life and sometimes completely eliminate the disease.

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