

## Treatment of Musculoskeletal Disorders- Scientific Review of the Literature

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**ABSTRACT**

**Purpose of the article:** The purpose of the article is to present a paper about treatment of musculoskeletal disorders from review of literature.

**Materials and methods:** In March and April 2019 were searched various biomedical databases such as PubMed, Research Gate and Academia.edu using the keywords "Work Related Musculoskeletal Disorders", "Musculoskeletal Injuries", "Work Injuries", "Physiotherapists", "Occupational health", "Treatment", on the basis of which the presentation of the data obtained in the found research was done.

**Results:** By reviewing 50 references, we presented the principles of treatment of musculoskeletal disorders. For many patients, clinical treatment decisions are often focused on a specific region of the body without much recourse to the potential impact of prognostic factors or other coexisting pain problems. It is difficult to obtain a more holistic view because examinations and systematic examinations usually focus on the specific site of musculoskeletal pain, comparing only two or three treatment options.

**Conclusion:** Exercise therapy is beneficial for pain, function, and quality of life. Current research evidence shows significant positive effects in exercise programs on pain, function, quality of life, and work-related results in the short and long term for all manifestations of musculoskeletal pain (compared to subjects without exercise). Manual therapy has little or no clinically relevant effect on pain intensity, functional status, global improvement or return to work in patients with acute, subacute or chronic back pain with or without sciatica. TENS was no more effective in reducing placebo pain in chronic back pain, neck pain, shoulder pain, knee pain, and chronic musculoskeletal pain in general. Ultrasound and shock wave therapy do not significantly improve the clinical outcomes of acute and chronic lower back pain.

**Keywords**

Musculoskeletal disorders, Treatment, Review.

**Introduction**

People with musculoskeletal disorders related to work in different parts of the body have similar clinical picture characteristics and prognosis and may respond to similar treatments [1]. Musculoskeletal pain present in musculoskeletal disorders is addressed through several treatment options, most of which are in primary care provided by first-contact clinicians such as general practitioners, physiotherapists, chiropractors, and osteopaths. These include non-pharmacological treatments (eg

self-management counseling and education, exercise therapy, manual therapy and psychosocial interventions), complementary therapies (eg acupuncture) and pharmacological interventions (eg analgesics, non-steroidal anti-inflammatory drugs (NSAIDs), corticosteroid injections). For refractory symptoms, surgical interventions (e.g., arthroscopic debridement, complete joint replacement, and laminectomy) may be considered [2,3].

In order to provide optimal care to patients with musculoskeletal pain and ensure efficient use of health resources, comprehensive application of available therapeutic procedures for the most effective treatment options for musculoskeletal pain [4-6] is essential. Given

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that there are many factors (including patient characteristics and risk of poor outcome) that can influence treatment outcome, the optimal approach to the treatment of musculoskeletal pain should include the strategic choice of treatment that is most appropriate for different patients [1].

Most treatments for pain in musculoskeletal disorders provide small to moderate short-term benefits. There is great heterogeneity in patient response to treatments, suggesting that some patients may benefit more from some treatments than others [7]. Localized musculoskeletal pain often coexists in more than one region of the body and shares similar basic characteristics, course of symptoms, and prognostic factors with different regional pains [8,9]. For many patients, clinical treatment decisions are often focused on a specific region of the body without much recourse to the potential impact of prognostic factors or other coexisting pain problems. It is difficult to obtain a more holistic view because examinations and systematic examinations usually focus on the specific site of musculoskeletal pain, comparing only two or three treatment options [1].

Oral and / or written information, advice, and education are aimed at improving patients' understanding of their musculoskeletal pain and self-control techniques, addressing patients' concerns about serious causes and outcomes, supporting return to function, and minimizing dependence on health care providers. Advice and education on self-management of manifestations of musculoskeletal disorders is given to either individuals or groups of patients, as part of an intervention program [10,11].

Exercise therapy is beneficial for pain, function, and quality of life [12]. In their study, Teasell and colleagues found that exercise therapy led to clinically significant improvements in pain, function, and quality of life in pain in the shoulders, knees, back, and multiple pains in patients with musculoskeletal disorders. Functional exercises (exercises that patients adapt to their daily life activities and that allow them to perform them more easily and without injury) are more useful than exercises that are not specifically focused on function. Current research evidence shows significant positive effects in exercise programs on pain, function, quality of life, and work-related results in the short and long term for all manifestations of musculoskeletal pain (compared to subjects without exercise) [14-16].

Manual therapy and its effect on pain and function in musculoskeletal disorders have been mainly investigated in combination with other treatments and most often for chronic pain. Manipulation, mobilization and massage (where indicated) are useful for immediate and / or short-term (4-6 weeks) improvement of range of motion and function in patients with acute and chronic neck pain, as well as musculoskeletal disorders caused by concussion [17,18]. In their study, Gross and co-workers concluded that thoracic manipulation leads to a significant reduction in pain and increased function in patients with acute neck pain [19]. For back pain, evidence suggests that manual therapy alone or in combination with other treatments may bring some benefit to pain and function

[20]. Compared to other treatments (eg general care, acupuncture, ultrasound, standard physiotherapy, analgesic therapy, exercise or back school), manual therapy has little or no clinically relevant effect on pain intensity, functional status, global improvement or return to work in patients with acute, subacute or chronic back pain with or without sciatica. Available evidence suggests that manual therapy may offer some beneficial effects on pain and function, but may not be better than other nonpharmacological treatments (e.g., exercise) for patients with acute or chronic musculoskeletal pain [21,22].

NSAIDs and opioid analgesics (especially for acute pain) were generally effective, but the beneficial effects were evident mostly in the short term [3,13]. In a study conducted by Hochberg et al., Selective cyclooxygenase (Cox) -2 inhibitors (e.g., celecoxib) were found to be effective in relieving musculoskeletal pain. However, they are associated with higher risks of adverse cardiovascular and gastrointestinal reactions compared to nonselective NSAIDs [14]. NSAIDs, Cox-2 selective inhibitors, and opioids reduce pain in the short term, but the magnitude of the effect is modest and the potential for adverse effects such as gastrointestinal bleeding and opioid-induced hyperalgesia needs to be carefully considered [15,16].

One of the treatments used for musculoskeletal disorders are pharmacological interventions-injections for local application of the drug. There is evidence of short-term (4 weeks) benefits of corticosteroid injection to relieve moderate to severe shoulder pain for corticosteroid injection compared to NSAIDs. Also, for knee pain, corticosteroid injections have been shown to be short-term effective in relieving moderate to severe pain compared with placebo [17]. In a study by Zhang et al., They found results that suggested that for knee pain, viscosupple supplements such as intra-articular hyaluronate injections were better than placebo, for reducing pain and improving function in the short term (1-4 weeks) [18]. There is no significant evidence for the use of epidural spinal injections with or without steroids, as the benefits (current pain reduction) have been small and persistent [19,20]. In studies in Benyamin et al and Cohen et al, they obtained short-term pain relief after epidural spinal injection that was hampered by significant heterogeneity, and the severity and subtype of pathology influenced treatment outcome [19,20]. In the end, injections may be no more effective than nonpharmacological interventions such as exercise [3]. Bono et al and self-control. Evidence suggests that injections offer short-term relief of shoulder and knee pain (up to 3 months), but efficacy in back and neck pain is uncertain [31,32].

Aids and devices such as orthoses, braces, prostheses, cervical collars, and other support devices, either alone or in combination with other treatments for musculoskeletal pain, have generally shown small effects on pain, function, or performance [33]. Routine use of cervical collars has been found to provide any clinically significant benefit for neck pain, which can be attributed to marginal pain relief (short-term) and propensity to rest and inactivity, and thus prolong disability. Patellar taping has been shown to have some beneficial effects (short-term) on pain and

function in patients with patellofemoral pain. There is very little empirical evidence of the beneficial effects of knee orthoses, but in collateral ligament injuries of grade II and III, short-term (4-6 weeks) use of an articular orthosis can be considered part of rehabilitation. The overall evidence on the use of aids and devices in the treatment of musculoskeletal pain was assessed as limited. For presentations of neck, shoulder, back, and knee pain, the available evidence does not justify routine use of aids and devices to effectively improve pain, function, and / or performance [13,22].

Other treatments such as acupuncture, ultrasound, TENS, laser, cold / hot compresses compared to treatments such as analgesia and exercise, these interventions are less frequently evaluated in research. In their study of a quality meta-analysis of individual data on patients treated with acupuncture, Vickers and colleagues suggest that acupuncture may be effective in relieving back and knee pain in the short term. The effects on function are minimal and do not increase during long-term follow-up. Similar to neck and shoulder pain, acupuncture was effective only for short-term (immediately after treatment and short-term follow-up) relief of symptoms compared with placebo [34]. TENS was no more effective in reducing placebo pain in chronic back pain, neck pain, shoulder pain, knee pain, and chronic musculoskeletal pain in general [35-37]. Ultrasound and shock wave therapy do not significantly improve the clinical outcomes of acute and chronic lower back pain. For shoulder and / or neck pain, evidence suggests that ultrasound does not provide significant or additional benefit over placebo or other treatments [38]. In a study by Kadhim-Saleh et al., Evidence of the effectiveness of laser therapy for shoulder pain, whether acute or chronic, was not significant [39]. In terms of knee pain, other treatments including ultrasound, electromagnetic fields, low-level laser therapy, TENS, biofeedback, neuromuscular electrical stimulation may provide additional benefits in addition to exercise therapy and / or surgical treatment. Whether alone or in combination with other treatments, there is often little effect as a result of these treatments to improve musculoskeletal pain and function largely without clinical significance [14,40].

The effectiveness of psychosocial interventions (related to various interventions such as cognitive-behavioral therapy and pain management skills, which are used to support people in overcoming challenges and maintaining good health) for managing musculoskeletal pain includes a wide range of approaches aimed at achieving improved self-management, behavioral and / or cognitive changes with biomedical pain management. Interventions are often multimodal and involve multidisciplinary treatment [41]. The effectiveness of psychosocial interventions in the treatment of shoulder, knee and neck pain has been less investigated compared to back pain. Psychosocial interventions in combination with other treatment options provide an additional benefit for all manifestations of musculoskeletal pain, especially for patients found to have a poor prognosis before treatment. The outcome of psychosocial treatment is also influenced by other factors such as the patient's prognosis, the healthcare provider providing the treatment, the treatment delivery settings and the treatment components [42,43].

Surgical treatment in most guidelines states that it is indicated in a small number of patients (as many as 8%) with pain in the neck, shoulder, back and knees [44]. For neck, shoulder, knee, and back pain, when indicated, there is moderate evidence that surgery has benefits for pain and function compared to control subjects on a waiting list or conservative treatments including analgesia and short-term exercise [45,46]. In specific cases, such as arthroscopic debridement and knee lavage, the available evidence does not indicate a clinically significant benefit for pain or function compared to a control group of subjects after three months of intervention, and no long-term benefit from surgery for clinical outcomes. Compared to conservative treatment [46-48]. The long-term efficacy of surgery is limited, except where it is directly indicated by specific serious pathology such as end-stage degenerative knee joint disease, persistent pain, and functional limitations that are resistant to conservative treatments [49,50].

### **Materials and Methods of Work**

In March and April 2019 were searched various biomedical databases such as PubMed, Research Gate and Academia.edu using the keywords "Work Related Musculoskeletal Disorders", "Musculoskeletal Injuries", "Work Injuries", "Physiotherapists", "Occupational health", "Treatment", on the basis of which the presentation of the data obtained in the found research was done. The research is limited to articles published in English. This research is a non-experimental qualitative research, ie a scientific review of the literature.

### **Results and Discussion**

By reviewing 50 references, we presented the principles of treatment of musculoskeletal disorders. For many patients, clinical treatment decisions are often focused on a specific region of the body without much recourse to the potential impact of prognostic factors or other coexisting pain problems. It is difficult to obtain a more holistic view because examinations and systematic examinations usually focus on the specific site of musculoskeletal pain, comparing only two or three treatment options.

### **Conclusions**

1. Exercise therapy is beneficial for pain, function, and quality of life.
2. Current research evidence shows significant positive effects in exercise programs on pain, function, quality of life, and work-related results in the short and long term for all manifestations of musculoskeletal pain (compared to subjects without exercise).
3. Manual therapy has little or no clinically relevant effect on pain intensity, functional status, global improvement or return to work in patients with acute, subacute or chronic back pain with or without sciatica.
4. TENS was no more effective in reducing placebo pain in chronic back pain, neck pain, shoulder pain, knee pain, and chronic musculoskeletal pain in general.
5. Ultrasound and shock wave therapy do not significantly improve the clinical outcomes of acute and chronic lower back pain.
6. Psychosocial interventions in combination with other treatment options provide an additional benefit for all manifestations of

musculoskeletal pain, especially for patients found to have a poor prognosis before treatment. The outcome of psychosocial treatment is also influenced by other factors such as the patient's prognosis, the healthcare provider providing the treatment, the treatment delivery settings and the treatment components.

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