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EFFECT OF ELECTROTHERAPY MANAGEMENT ON CHRONIC MUSCULOSKELETAL PAIN IN ADULTS: SYSTEMIC REVIEW

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INTRODUCTION

The International Association for the Study of Pain (IASP) has updated the definition of pain as "An unpleasant sensory and emotional experience associated with or resembling that associated with, actual or potential tissue damage". Chronic musculoskeletal pain (CMP) is a common and debilitating condition that affects millions of people worldwide. It is characterized by persistent pain in the muscles, bones, and joints that lasts for more than three months. The Pain Task Force of the (IASP), defines Chronic Primary Musculoskeletal Pain (CPMP) as "chronic pain in the muscles, bones, joints, or tendons that is characterized by significant emotional distress (i.e., anxiety, anger, frustration, and depressed mood) or functional disability". CMP can be caused by a variety of factors, including injury, inflammation, and degenerative changes in the musculoskeletal system. It can have a significant impact on the quality of life of the affected individuals, as it can limit their physical function, mobility, and psychological well-being. CMP can also lead to secondary psychological distress, such as depression, anxiety, anger, frustration, low self-esteem. and disability. it also lead to many disorders which is chronic fatigue, sleep problems, reduced mobility, and increased risk of other health problems. it is often difficult to diagnose and treat, as it can involve multiple body regions and systems According to the Who and Global Burden of Disease (GBD) study, CMP is one of the leading causes of disability worldwide. It is estimated that over 20% - 33% of adults suffer from CMP, and the prevalence increases with age. CMP can have a significant impact on a person's quality of life, affecting their ability to work, perform daily activities, and participate in social and recreational activities.

The GBD report also highlights the significant economic burden of CMP, with healthcare costs and lost productivity estimated to be in the billions of dollars annually. Despite its prevalence and impact, CMP is often underdiagnosed and undertreated, leading to unnecessary suffering and disability.

Musculoskeletal pain is primarily somatic in nature, but the presence of musculoskeletal pain does not preclude the addition of other pain syndromes, including neuropathic and/or visceral pain syndromes. The most prevalent forms of musculoskeletal pain are chronic low back pain, neck pain, and the pain associated with osteoarthritis and rheumatoid arthritis, but musculoskeletal pain also includes sprained muscles, pain associated with fracture, shoulder pain, and others. Advancing age increases the risk of musculoskeletal pain, although it may occur at any age. The effectiveness of these treatments varies from person to person and may depend on several factors. Therefore, it is important to consult with a qualified health professional before starting any treatment for CMP. It is also important to follow the treatment plan as prescribed and to monitor the progress and outcomes regularly.

Methods

This present literature review were conducted to analyze the Effect of Electrotherapy Management on Chronic Musculoskeletal Pain in Adults in 2023. The study is reported according to PRISMA review guidelines .

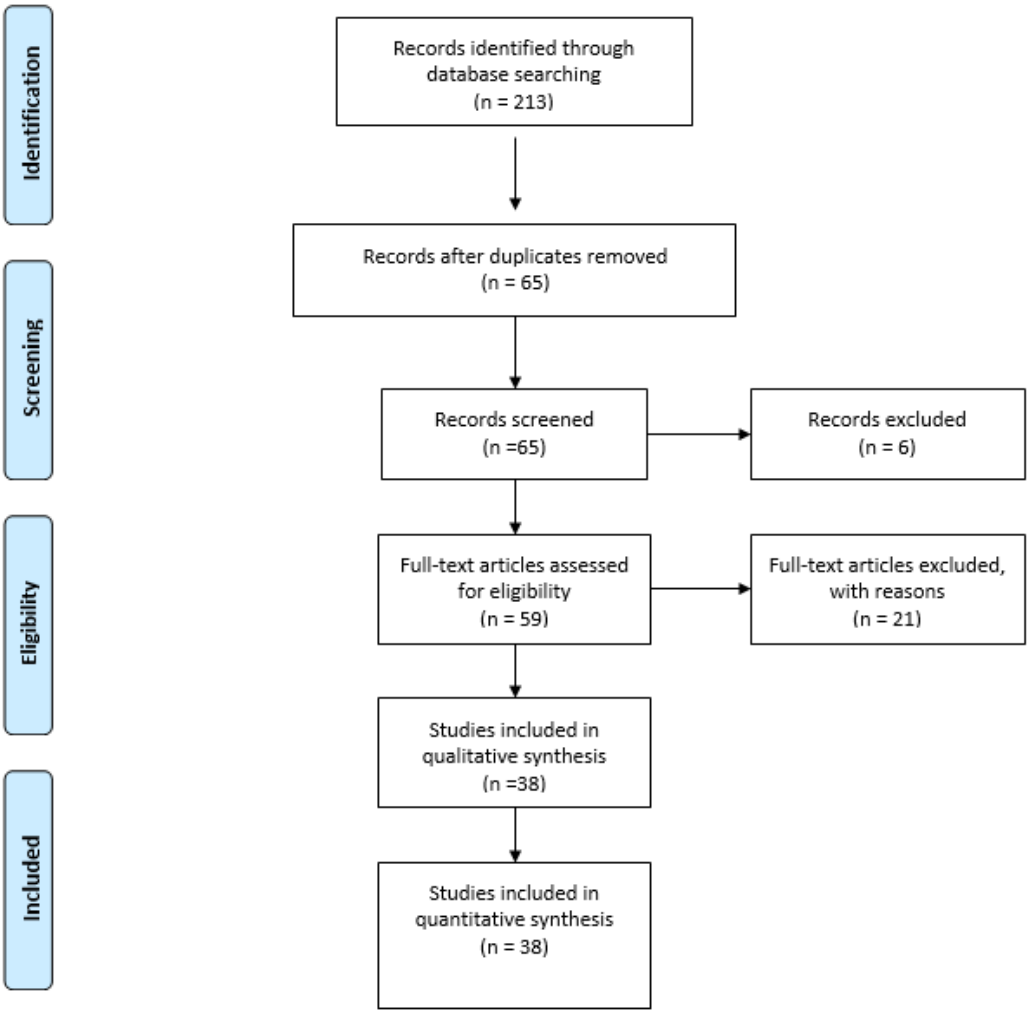
Search strategy and eligibility criteria

The literature is searched by utilizing various search engines such as Scopus, PubMed, Web of Science, and google scholar, by using following keywords such as kineso tape, kinesiology tapping, neck pain, neck disability, mechanical neck pain.

The published study in English will be consider eligible for this study, the date limit starting from 2011 to December 2022. study published under 10 year is consider in this study. PRISMA Guidelines are used to identify, analyse and conduct the literature review.

Methodological quality assessment and risk of bias

The critical appraisal tool was used to assess the quality (PEDro) of selected study. Study which score greater than 8 were only included in this study.



The image you sent me is a flow diagram of the study selection process. It shows the steps involved in identifying, screening, and selecting studies for inclusion in a systematic review or meta-analysis. The first step is to identify all relevant studies. This is done by searching electronic databases such as PubMed or MEDLINE. The number of records identified in this step is shown in the box labelled "Records identified through database searching (n=213)".

The next step is to screen the identified records to remove duplicates and those that are clearly irrelevant. The number of records remaining after this step is shown in the box labelled "Records after duplicates removed (n=65)".
The third step is to assess the full-text articles of the remaining records to determine their eligibility for inclusion in the review. The number of articles that were assessed in this step is shown in the box labelled "Records screened (n=88)".
The fourth step is to make a final decision about which studies to include in the review. The number of studies that were included in the review is shown in the box labelled "Studies included in qualitative synthesis (n=15)" and "Studies included in quantitative synthesis (n=15)".

Results

SL. No	Paper Title and Authors	Publication Date	Subjects/Conditions	Key Findings
1	John booth et.al [2017]	2017	Chronic Musculoskeletal Pain	Different exercise treatment approaches are required for patients with CMP due to varying clinical presentations, thoughts, beliefs, behaviors, and expectations.
2	Ken Ren et.al [2020]	2020	Musculoskeletal Pain	Chronic musculoskeletal pain is challenging in primary care, and a systemic disease can complicate pain differentiation.
3	Michael Dunn et.al [2022]	2022	Chronic Musculoskeletal Pain	The study aims to understand the perceptions and beliefs of individuals about the biological, psychological, and social influences contributing to CMP.
4	Dawn V. Ernstzen et.al [2017]	2017	Chronic Musculoskeletal Pain	The systematic review aims to identify evidence-based CPGs for managing CMSP in primary healthcare settings and evaluate their effectiveness.
5	Irena Kovacevic et.al [2018]	2018	Chronic Musculoskeletal Pain	Self-care is a common approach for dealing with chronic musculoskeletal pain, and it may complement multidisciplinary treatment strategies.
6	Rosa Andias et.al [2021]	2021	Chronic Musculoskeletal Pain	Baseline self-reported central sensitization symptoms in asymptomatic teenagers may be related to chronic pain at a 6-month follow-up.
7	Steven P. Cohenc et.al [2022]	2022	Chronic Primary Pain	Chronic primary pain, without recognizable biological or psychological causes, may be classified as nociplastic pain, distinct from nociceptive or neuropathic pain.
8	DaWana Stubbs et.al [2010]	2010	Chronic Pain in Women	Women are more likely to report chronic pain, experience distinct pain symptoms, and have lower experimental pain thresholds and tolerances.
9	Lynn Tan et.al [2022]	2022	Chronic Musculoskeletal Pain	The systematic review investigates the impact of aerobic exercise on pain sensitivity in individuals with musculoskeletal discomfort.

10	Jacqui Clinch et.al [2009]	2009	Chronic Musculoskeletal Pain	Chronic pain in young people has negative impacts on physical and psychological well-being and economic costs for families and society.
11	Richard L. Uhl, MD et.al [2014]	2014	Chronic Musculoskeletal Pain	Chronic musculoskeletal pain poses diagnostic and therapeutic challenges, and conventional analgesics may be ineffective for long-term management.
12	Gunja Jain et.al [2022]	2022	Chronic Musculoskeletal Pain	Chronic musculoskeletal discomfort is prevalent in older individuals, and pain sensitization is a significant component of it, emphasizing the need for comprehensive assessment and treatment in older populations.
13	Geonhyeong Bae et.al [2020]	2020	Chronic Musculoskeletal Pain	Prolotherapy may induce a healing process that mimics the body's natural response and can be effective for chronic musculoskeletal pain.
14	Jeannie F Bailey et.al [2020]	2020	Chronic Musculoskeletal Pain	Non-surgical treatments, like exercise and behavioral health, are recommended as the first-line treatment for chronic musculoskeletal pain, but operational challenges and patient involvement remain significant issues.
15	Elham Zarean et.al [2021]	2021	Musculoskeletal Pain Syndrome	Musculoskeletal pain syndrome (MSPs) comprises various inflammatory and degenerative disorders affecting peripheral nerves, blood vessels, muscles, joints, etc., and up to 30% of the population may have pain from an unknown source.

The collection of research papers provides valuable insights into the complexities and challenges surrounding chronic musculoskeletal pain (CMP) and related conditions. Each study sheds light on different aspects of CMP, including its diverse clinical presentations, underlying biological, psychological, and social influences, and the need for individualized treatment approaches. Let's discuss some key points and overarching themes that emerge from these studies.

Discussion

Chronic musculoskeletal pain (CMP) presents a complex and multifaceted challenge in healthcare, with a wide range of clinical presentations and impacts on diverse populations. The study by John Booth et al. highlights how patients with remarkably similar underlying pathologies can exhibit striking differences in their thoughts, beliefs, behaviors, and expectations. This diversity emphasizes the necessity of adopting personalized treatment approaches tailored to each patient’s unique needs and circumstances. A one-size-fits-all model is insufficient in addressing the nuanced ways CMP manifests in individuals, reinforcing the need for clinicians to remain adaptable and patient-centered in their care strategies.

The difficulty of diagnosing CMP is another significant hurdle, particularly when systemic diseases obscure the origin of the pain. Ken Ren et al.'s study underscores the challenges faced in differentiating pain sources, which often leads to delays or inaccuracies in diagnosis. These challenges highlight the importance of comprehensive assessments that integrate both medical and psychosocial

evaluations. Interdisciplinary approaches, involving collaboration between primary care physicians, pain specialists, physical therapists, and mental health professionals, are essential for accurate diagnosis and effective management of CMP, ensuring that no contributing factor is overlooked.

The biopsychosocial model of care has gained increasing recognition for its relevance in CMP management. Research by Michael Dunn et al., Rosa Andias et al., and Elham Zarean et al. emphasizes the interplay of biological, psychological, and social factors in the experience and perpetuation of chronic pain. Individual perceptions, cultural beliefs, and social environments play a pivotal role in shaping a patient's pain experience and response to treatment. These insights call for healthcare providers to move beyond purely biomedical approaches and engage in empathetic, patient-centered communication. Moreover, understanding these biopsychosocial dimensions can guide the development of more holistic and inclusive research initiatives aimed at unraveling the complexities of CMP.

Standardizing care through evidence-based clinical practice guidelines (CPGs) is another critical avenue for improving outcomes in CMP management. Dawn V. Ernstzen et al. conducted a systematic review to identify effective CPGs for primary healthcare settings. Their findings suggest that implementing such guidelines can not only standardize care but also ensure that patients receive interventions that are both scientifically validated and practically applicable. These guidelines can serve as a foundation for healthcare systems aiming to reduce variability in treatment practices and improve overall patient outcomes.

Self-care is a cornerstone of CMP management, as explored in the work of Irena Kovacevic et al. Many individuals with CMP rely on self-care strategies to manage their symptoms, often combining them with professional interventions. Integrating self-care into multidisciplinary treatment frameworks can empower patients, foster a sense of control over their condition, and enhance the overall effectiveness of care plans. Self-care practices, including exercise, mindfulness, and pain education, can complement medical treatments and provide patients with sustainable tools for long-term management.

The diverse impacts of CMP across different populations are highlighted in studies by DaWana Stubbs et al., Lynn Tan et al., Gunja Jain et al., and Geonhyeong Bae et al. These studies reveal the unique challenges faced by specific groups, including women, older adults, and even asymptomatic teenagers. For instance, women may experience CMP differently due to hormonal influences, while older adults often contend with coexisting conditions that complicate pain management. Meanwhile, the presence of CMP in asymptomatic teenagers raises concerns about the early onset of chronic pain conditions and the need for preventive interventions. Recognizing these population-specific variations is crucial for developing tailored strategies that address the distinct needs of each group.

The concept of chronic primary pain represents another layer of complexity in understanding CMP. Steven P. Cohenc et al. describe chronic primary pain as a condition where pain persists without identifiable biological or psychological causes. This classification challenges traditional frameworks that categorize pain as either nociceptive or neuropathic. Understanding chronic primary pain requires a paradigm shift, encouraging clinicians and researchers to explore new diagnostic and therapeutic approaches that account for the unique nature of this condition.

Managing CMP with conventional analgesics often proves inadequate, as noted by Richard L. Uhl et al. Their study points to the limitations of traditional pain medications and the necessity of exploring alternative and innovative treatment options. Approaches such as prolotherapy, regenerative medicine, and integrative therapies are gaining traction as potential solutions to address the unmet needs of patients with CMP. These alternatives not only expand the therapeutic toolbox but also offer hope to patients who have struggled with ineffective or unsustainable treatment regimens.

The impact of CMP on young people is a growing concern, as highlighted by Jacqui Clinch et al. Chronic pain can significantly impair the physical, emotional, and social well-being of young individuals, disrupting their education, relationships, and overall quality of life. Addressing CMP in youth is critical to prevent long-term consequences and ensure healthy development. Early interventions that combine medical, psychological, and social support can mitigate the adverse effects of chronic pain and set young people on a path toward improved health and resilience.

Conclusion

In conclusion, chronic musculoskeletal pain (CMP) represents a complex and multifaceted health challenge that necessitates a holistic, patient-centered approach to care. The variability in clinical presentations, diagnostic complexities, and biopsychosocial influences underscores the importance of individualized treatment strategies tailored to the unique needs of each patient. Evidence-based clinical practice guidelines, comprehensive assessments, and interdisciplinary collaboration are essential for improving diagnostic accuracy and standardizing care.

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