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Role of Neuromuscular Electrical Stimulation in Managing Diabetic Neuropathy: A Narrative Review

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ABSTRACT

Introduction: Diabetic Neuropathy (DN) is a prevalent complication of diabetes mellitus, leading to chronic pain, muscle weakness, and reduced quality of life. Neuromuscular Electrical Stimulation (NMES) has gained attention as a non-pharmacological intervention for managing DN symptoms. NMES is used to enhance muscle function, improve circulation, and support rehabilitation efforts in individuals with DN. However, further research is required to establish its clinical utility and optimise its application in patient care.

Aim: This narrative review aims to synthesise recent findings on the role of NMES in managing pain, improving strength, and enhancing the quality of life in patients with diabetic neuropathy.

Methodology: A literature review was conducted using peer-reviewed studies, systematic reviews, and Randomised Controlled Trials (RCTs) published in the last five years. The search was performed in databases such as PubMed, Scopus, and Google Scholar, focusing on studies evaluating the therapeutic benefits of NMES in diabetic neuropathy management.

Results: Recent studies highlight that NMES enhances muscle function and improves mobility by increasing muscle activation and circulation. Research has demonstrated its effectiveness in stimulating neuromuscular pathways, leading to improved strength and functional capacity. NMES has also been found to support sensory feedback mechanisms, potentially contributing to pain relief and improved motor control in individuals with DN. These findings suggest that NMES may be an effective intervention for improving mobility and quality of life in patients with diabetic neuropathy.

Conclusion: NMES holds promise for managing diabetic neuropathy symptoms. It is particularly effective for enhancing muscle strength, mobility, and functional recovery. Further studies should explore optimal protocols for NMES application to maximise its therapeutic benefits.

Implication: Healthcare professionals should consider integrating NMES into rehabilitation programmes for individuals with diabetic neuropathy. A patient-specific approach in utilising NMES may help improve physical function and quality of life.

Keywords: Diabetic neuropathy, Neuromuscular Electrical Stimulation, Pain management, Muscle strength, Rehabilitation

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