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Effectiveness of Neural Mobilization Technique and Low-Level Laser Therapy in Sub-Acute Carpal Tunnel Syndrome Patients

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Abstract

Introduction: Carpal Tunnel Syndrome (CTS) results from the compression of the median nerve in the carpal tunnel.CTS represents the most prevalent neural injury in the general population (1-4%) and workers at risk (15-20%), and its prevalence is 40-60 years. Neural mobilization Technique(NMT) is a manual therapy treatment that alters the physiological properties of nerves. Its methods, especially the sliding technique, are likely beneficial for patients with CTS. Low-Level Laser Therapy (LLLT) exerts analgesic effects on peripheral nerves due to specific inhibition of nociceptive activation.

Methods: A total of 30 subjects were selected for the study, obtaining informed consent, and the study duration is 3 weeks. All 30 subjects continuously received both neural mobilization technique and low-level laser therapy for 3 weeks. To determine the effect, the pre-and post-test interventions were compared based on the hand dynamometer, BCTQ, and goniometer measures.

Results: Wrist ROM in flexion and extension showed substantial increases, with median flexion improving from 61.00 to 66.50 degrees and extension from 45.00 to 49.00 degrees. BCTQ significantly enhanced, with the median SSS decreasing from 30.00 to 26.00 and the FSS from 21.00 to 17.00. Additionally, grip strength increased dramatically from a median of 8.00 kg to 11.00 kg. These changes were statistically significant, with all p-values being < 0.001.

Conclusion: The neural mobilization technique and LLLT substantially improved grip strength, ROM, and functional status.