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Hydrotherapy for Muscular Dystrophy: A Revitalised Approach to Improve Hand Function and Well-Being

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ABSTRACT

Introduction: The term "muscular dystrophy" refers to a group of hereditary disorders that induce slow and widespread muscle degeneration because of the lack of glycoproteins in the muscle cell plasma membrane. There are several types of Muscular Dystrophy (MD), each having a unique onset period, inheritance patterns, and the pace of muscle degradation. Aquatic rehabilitation is currently used to treat neuromuscular disorders in patients who have abnormal sensations, poor coordination, impaired motor control or weakness, impaired balance or equilibrium reaction, decreased ability, abnormal gait pattern, decreased endurance, depression, or poor motivation. Patients can accomplish activities that would be impossible on land owing to the characteristics of water, including density, viscosity, buoyancy, increased resistance, hydrostatic pressure, and thermodynamics. These characteristics also help patients reach their rehabilitation objectives.

Materials and Methods: The study employs an experimental qualitative design and was conducted at the Indian Muscular Dystrophy Centre in Delhi. The subjects were individuals diagnosed with muscular dystrophy, selected based on inclusion criteria such as being diagnosed with MD, having a stable medical condition, aged between 15 and 50 years, and including both genders. Exclusion criteria include the absence of assistive devices, severe cognitive or physical impairments, and an MMT score of less than 2. The study involved interventions such as hydrotherapy to assess their impact on dependent variables like hand grip strength and quality of life. Data collection was conducted over a period of four weeks, with sessions occurring three times per week. Instruments used include a hand-held dynamometer, bucket, hand gripper, peg boards, Quality of Life Scale Q-36, TheraBand, and Thera Loop. Ethical considerations, such as informed consent, were obtained and participant confidentiality was maintained.

Result: Hydrotherapy significantly improved the strength of left and right-hand grip in the experimental group compared to the control group. The specific t-values and p-values for these improvements were as follows: Left-hand grip strength: [T=5.55, P=0.003] Right-hand grip strength: [T=9.38, P=0.002].

Conclusion: Hydrotherapy has shown promise in treating and aiding the recovery of MD patients. Comprehensive studies with larger sample sizes are needed. MD is a genetic disease, causing significant health, medical, economic, and social issues. Current treatments manage symptoms and slow progression but do not cure the disease. Treatments include drugs like corticosteroids, which have side effects, and gene therapy, which is costly and limited to animal models.

Keywords: Hand grip strength, Health-related quality of life, Muscle strength, Non-invasive treatment

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