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Effect of Neuromuscular Electrical Stimulation on Balance and Gait Recovery in Post Concussion Combat Sports Athletes: A Study Protocol

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ABSTRACT

Introduction: Combat sports athletes often suffer from Post-concussion Syndrome (PCS) due to repeated head trauma, leading to symptoms such as dizziness, balance issues, and gait abnormalities. Vestibular rehabilitation improves balance, while Neuromuscular Electrical Stimulation (NMES) enhances muscle activation making a combination of both therapies promising for PCS recovery.

Need of the Study: To find out the effectiveness of NMES on balance and gait recovery in post concussion combat sports athlete.

Materials and Methods: The present study will be single blinded, parallel group, randomised controlled trial recruiting 74 athletes with post-concussion and will be allocated through computerised randomisation into two groups as per inclusion and exclusion criteria. The experimental group will be treated with NMES (Pulse duration of 200 microseconds, frequency of 50 pps, ON time of 5.0 seconds, OFF time of 5.0 seconds, RISE time of 2.0 seconds, FALL time of 2.0 seconds & will be applied for 20 minutes per session) along with vestibular exercise whereas the control group will be treated with placebo NMES along with vestibular exercise protocol based on Herdman's guidelines. The outcome measures such as balance and gait parameters will be assessed using Balance Error Scoring System (BESS) score and stride time, step length, and gait speed. The data will be collected and analysed post fourth week intervention. The experimental group is might show significantly improved balance and gait parameters compared to the control group.

Keywords: Balance recovery, Neuromuscular electrical stimulation, Post-concussion syndrome, Vestibular exercises

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