

## Effect of Whole Body Vibration on Posture Stability and Planter Pressure in Patients with Diabetic Neuropathy

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**Abstract :** Background/ /Significance: Peripheral neuropathy is one of the long term serious complications of diabetes, which may attribute to postural instability and alteration of planter pressure. Whole body vibration (WBV) is a somatosensory stimulation type of exercise that has been emerged in sport training and rehabilitation of neuromuscular disorders. Purpose: The aim of this study was to investigate the effect of whole Body Vibration on antroposterior (AP), mediolateral (ML) posture stability and planter foot pressure in patients with diabetic neuropathy. Subjects: forty diabetic patients with moderate peripheral neuropathy aged from 35 to 50 years, were randomly assigned to WBV group (n=20) and control group (n=20). Methods and Materials: the WBV intervention consisted of three session weekly for 8 weeks (frequency 20 Hz, peak-to peak displacement 4mm, acceleration 3.5 g). Biodex balance system was used for postural stability assessment and the foot scan plate was used to measure the mean peak pressure under the first and lesser metatarsals. The main Outcome measures were antroposterior stability index (APSI), mediolateral stability index (MLSI), overall stability index (OSI), and mean peak foot pressure. Analyses: Statistical analysis was performed using the SPSS software package (SPSS for Windows Release 18.0). T-test was used to compare between the pre- and post-treatment values between and within groups. Results: For the 40 study participants (18male and 22 females) there were no between-group differences at baseline. At the end of 8 weeks, Subjects in WBV group experienced significant increase in postural stability with a reduction of mean peak of planter foot pressure ( $P<0.05$ ) compared with the control group. Conclusion: The result suggests that WBV is an effective therapeutic modality for increasing postural stability and reducing planter pressure in patients with diabetic neuropathy.

**Keywords :** whole body vibration, diabetic neuropathy, posture stability, foot pressure

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