

Effects of Whole Body Vibration with extra loading on muscular performance

Hsing-Hsiang Wang, Chiang Liu, 劉雅甄, Tzyy-Yuang Shiang

Humanities and Social Sciences

yazhen@chu.edu.tw

Abstract

Whole Body Vibration, WBV, training revealed significant improvement in muscle strength, muscle power, jump performance, balance and postural control recently. The hypothesis of this study was WBV training with extra loading has better training effect compare to traditional WBV which it without extra loading. Therefore, the aim of current study was to compare the training effects among WBV with loading, WBV without loading and squat training in vertical jump, MVC, and isokinetic torque. 26 healthy male college students were participated this study and divided into the group of WBV training with loading of 75% 1RM by using vibration platform (Zen™ TVR-6900, Megtonic Corp., Taiwan) at 30Hz of vibration frequency and 4mm of amplitude (WBV-loading group) (n=9), the group of WBV training without any extra loading as the same protocol as the WBV-loading group (WBV group) (n=9), and the group of squat exercise training (Squat group) (n=8). All subjects trained 30 seconds per set, 5 sets per day, 3 days per week, and 4 weeks. Peak isokinetic torque of knee extensor in concentric and eccentric contraction phases were measured before and post training period by means of a motor-driven isokinetic dynamometer (Biodex System II, Shirley, New York) was used with velocity fixed at 300 deg/s. After repeated measure t-test, Both WBV-loading group and WBV group significantly improve in vertical jump performance about 5% and 11%, respectively ($p < .05$). Both WBV-loading group and Squat group significantly improve in MVC, isokinetic concentric torque, and isokinetic eccentric torque ($p < .05$). The findings suggested that WBV with extra loading induced the positive benefit in muscle power, muscle strength and isokinetic torque, as well as improved the muscular performance of knee extensor in the shorter training period. (The study supported by Megtonic Corp. in Taiwan)

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