EFFECTS OF 4-WEEK WHOLE BODY VIBRATION TRAINING WITH DIFFERENT FREQUENCIES ON EXPLOSIVE LOWER EXTREMITY PERFORMANCE

Chen Wanchin¹, Huang Mao-Ying, Shiaing Tzyy-Yuang
(National College of Physical Education and Sports ¹, Taiwan)

Whole body vibration (WBV) exercise has become a popular intervention recently, which is applied in athletes with the aim of improving power performance. However, the effects of different vibration frequencies on neuromuscular performance are unclear yet and there is rare study about the sprinters. Therefore, the purpose of this study was to investigate the adaptive responses to different WBV frequencies among sprinters.

Methods: 24 well college sprinters were randomly assigned to 3 groups to exposed to 4 weeks WBV training. The training program contained 3 times per week, 5 bouts lasting 30 seconds vibration stimulation while squatting on a vibrating plate producing sinusoidal oscillations (4mm) at 0 Hz (control group), 30 Hz (low frequency) and 50 Hz (high frequency) with the load of 75% maximal voluntary contraction. 30 m sprint, countermovement jump (CMJ) and 5-second chop test were performed before and after the WBV treatment. Statistical analysis for each of parameter was using one way repeated ANOVA to compare the different effects between varied vibrating frequencies. All parameters in the control treatment were less difference within 1% between pre and post. Low and high frequency WBV stimulation were shown to increase 30 m sprint by 2.6%, 1.8%, CMJ by 6.4%, 4.4% and trot by 4.9%, 4.5% sequentially. In conclusion, the results showed the performance of lower extremity were no significant improvement among varied treatment, however, the enhancement of 3 performance tests of 30Hz group was the most superior and then 50Hz and control group in sequence. Consequently, the further study will be need to exam the response among the varied vibrating amplitude and different skilled-level of athletes.

Keywords: Track and Field, Sports Training