

COMPARING THE EFFECTS OF DIFFERENT WHOLE-BODY VIBRATION INTENSITIES ON VERTICAL JUMP PERFORMANCE

David M. Bazett-Jones and Eric L. Dugan

Biomechanics Laboratory, Ball State University, Muncie, IN 47306, USA

Whole-body vibration (WBV) has been shown to enhance strength and power performance. Yet, it is not known what intensities provide the greatest improvements. **PURPOSE:** The purpose of this study was to determine which WBV intensity has the greatest effect on height of a counter movement jump (CMJ) and the duration of that affect, if any exists. **METHODS:** Forty-four subjects, of varying training statuses, were tested. Subjects also participated in at least 4 familiarization sessions, in an attempt to eliminate learning effect. On testing days, subjects performed a pre-test, followed randomly by one of 5 WBV intensities (0g, 1.81g, 2.94g, 3.71g, and 6.24g). Subjects performed 3 maximal CMJs immediately, 5 min, and 10 min following treatment. The best performance was used for analysis. Performances were calculated as a percentage of the pre-treatment values. **RESULTS:** A multivariate model was used to analyze the data. A three-way interaction (treatment x time x gender) approached significance ($p=0.053$). Two-way interactions were found for Treatment X Time ($p=0.024$) and Treatment X Gender ($p=0.004$). Females performed the best immediately (post 0) following the 2.94g treatment ($116.9 \pm 6.3\%$) and the 6.24g treatment elicited the best performance from males ($102.4 \pm 2.5\%$) at immediately after vibration. **CONCLUSIONS:** One 45 s bout of WBV at 2.94g (40 Hz, 2-4 mm) seems to be the most effective stimulus for this female population, which did not include elite athletes. Males may require a greater duration or volume of vibration exposure to elicit greater effects. The differences between males and females may also indicate that the effects of WBV are dependent on strength and/or training level. Future research should continue to systematically investigate the effects of vibration intensity (frequency & amplitude), duration, and previous training level on performance. **PRACTICAL APPLICATION:** There seems to be a difference between how WBV affects males and females. This may relate to training level or strength differences between these groups. WBV may need to be prescribed differently for males and females. Before strength coaches can fully utilize WBV, more research is needed to determine the prescription of this modality.

Contact Info:

David M. Bazett-Jones
2809 N 76th St #1
Milwaukee, WI 53222
Home Phone: 920-246-3128
Work Phone: 414-456-8422
bazetthound@juno.com

Student Award Consideration – Graduate Student
Presentation Preference – Either