

# THE EFFECTS OF WHOLE BODY VIBRATION ON VERTICAL JUMP, POWER, BALANCE, AND AGILITY IN UNTRAINED ADULTS

Harvey W. Wallmann, PT, DSc, SCS Emeritus, ATC, CSCS<sup>1</sup>

David L. Bell, PT, DPT, PhD, MTC, Cert DN<sup>2</sup>

Brandon L. Evans, PT, DPT<sup>3</sup>

Adam A. Hyman, PT, DPT<sup>4</sup>

Gary K. Goss, PT, DPT<sup>5</sup>

Adam M. Paicely, PT, DPT<sup>6</sup>

## ABSTRACT

**Background:** Despite the increased use of whole body vibration among athletes, there is limited literature on its acute effects within heterogeneous populations such as untrained adults or recreational athletes.

**Hypothesis/Purpose:** The purpose of this study was to investigate the acute effects of whole body vibration on vertical jump, power, balance, and agility for untrained males and females. It was hypothesized that there would be an effect on each outcome variable.

**Study Design:** Quasi-experimental, pretest-posttest design.

**Methods:** Twenty males and sixteen females, mean age 24.5 years, were assessed for vertical jump height and power as measured by the Myotest accelerometer, balance as measured by the NeuroCom Balance Master System, and agility as measured by a modified T-test. Each session consisted of a five-minute treadmill warm-up, a practice test, a baseline measurement, a two-minute rest period, whole body vibration at 2 mm and 30 Hz for 60 seconds, and a final measurement. Three different counterbalanced testing sessions were separated by a minimum of 48 hours in between sessions to minimize fatigue.

**Results:** Significant differences existed for both genders for main effect of time for Agility ( $p = 0.022$ ); end point excursion Left ( $p = 0.007$ ); and maximum endpoint excursion Left ( $p = 0.039$ ). Differences for main effect of gender revealed females performed better than males in the following respects: end point excursion Right ( $p = 0.035$ ); end point excursion Left ( $p = 0.014$ ); maximum endpoint excursion Right ( $p = 0.024$ ); and maximum endpoint excursion Left ( $p = 0.005$ ). Males performed better than females in two respects: Agility ( $p < 0.0005$ ) and Power ( $p < 0.0005$ ). A significant interaction was observed between time and gender for vertical jump ( $p = 0.020$ ). Simple main effects revealed males jumped higher than females during both pre and post intervention,  $p < 0.0005$ . Females had a significant decrease in the vertical jump post intervention ( $p = 0.05$ ).

**Conclusion:** Results indicated that whole body vibration produced significant differences in the main effect of time and agility, and end point and maximum end point excursion Left for both genders, acutely. Females performed better in balance compared to males and poorer in vertical jump, but males performed better in agility and power.

**Key Words:** Agility, Balance, Jump Height, Power, Whole Body Vibration

## CORRESPONDING AUTHOR

Harvey W. Wallmann, PT, DSc, SCS Emeritus,  
ATC, CSCS

Professor

Department of Physical Therapy

College of Health Professions

University of Findlay

1000 North Main Street

Findlay OH 45840

Phone: (419) 434-5778, Fax: (419) 434-4336

E-mail: harveywallmann@gmail.com

<sup>1</sup> University of Findlay, Findlay, OH, USA

<sup>2</sup> Western Kentucky University, Bowling Green, KY, USA

<sup>3</sup> Frazier Rehab Institute, Bardstown, KY, USA

<sup>4</sup> Results Physical Therapy, Bowling Green, KY, USA

<sup>5</sup> El Paso, TX, USA

<sup>6</sup> Thousand Oaks, CA, USA

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