

## Does Acute Whole Body Vibration Training Improve the Physical Performance of People with Knee Osteoarthritis?

Power Plate® whole body vibration training improves the physical performance of those with knee osteoarthritis.

This is a summary of a study published in the Journal of Strength and Conditioning Research in Nov. 2012. By Jay R. Salmon, Jaimie A. Roper, and Mark D. Tillman, University of Florida.

### Background:

Knee Osteoarthritis is a joint disorder that decreases strength in surrounding muscles and impairs neuromuscular functions. It can also affect Activities of Daily Living (ADLs), such as walking, getting up, and climbing stairs. Those with knee osteoarthritis are typically prescribed to do physical routines to preserve muscle function.

Vibration therapy can help increase muscle activation and reduce pain in people suffering from knee osteoarthritis.

### Method:

17 people with knee osteoarthritis were recruited from clinics and fitness centers surrounding the University of Florida to participate in this study.

Participants underwent 3 tests at 3 different time periods: prior to whole body vibration (WBV), 5 minutes after WBV, and 1 hour following WBV. The three tests included Timed-Up-and-Go Test (TUG), a step-test, and a 20m walk test. Pain levels with the tests were also recorded.

For the TUG test, participants stood from a seated position and walked around a cone placed 3 meters in front of them and then returned to a seated position in the chair. During the Step Test, participants were asked to step up and down off a 20cm step, 20 times at the pace of their choosing. The 20m Walk Test asked participants to walk as fast as they could for 20m in a straight-line, starting in a standing-still position.

A Personal Power Plate (2004 model) was used for all WBV Training sessions. Participants used the plates in 60 second increments for total of 10 minutes, receiving

WBV at 35Hz for 60 seconds on and 60 seconds off. Two of the 17 participants were unable to complete the protocol due to knee and ankle pain, so their data were not analyzed with the group.

### Results:

Results from the TUG Test and 20m Walk Test showed no major changes, however time to complete the Step Test improved significantly 5 minutes after WBV training compared to the initial test. No change was detected one hour from pretest to WBV training.

### Conclusion:

The findings of this study showed that quick usage of WBV training was effective in improving the ability of individuals with knee osteoarthritis to complete their step test by 11%. The improvement in time to complete the walk test 5 minutes after WBV training had a mean improvement of > 1 second. Those suffering from knee osteoarthritis may struggle completing ADLs, so finding a way to improve their quality of life through WBV training is incredibly important.

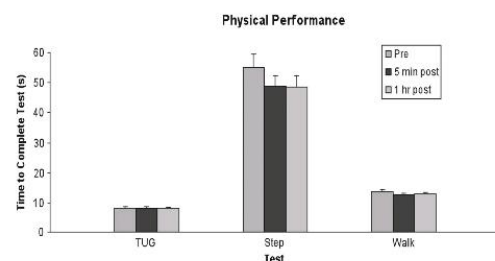


Figure 1 Mean and standard error before, 5 minutes after, and 1 hour after whole body vibration training for the three tests.