

THE EFFECT OF WHOLE BODY VIBRATION TRAINING ON WOMEN WITH STRESS URINARY INCONTINENCE

Hypothesis / aims of study

The effectiveness of PFM- training in women with SUI has already been established (1). The effects of whole body vibration(WBV) training on skeletal muscles have been researched (2). Vibration of a skeletal muscle stimulates the muscle spindle causing a tonic contraction of the muscle, referred to as a tonic vibration reflex. Reflex muscular contractions induced by WBV improve neuromuscular activity and power.

The aim of this study was to investigate if WBV-training had an increased treatment effect on SUI women in comparison to a control group who received only PFM-training.

Study design, materials and methods

Twenty two women (mean age: 51.85 years, range: 32-75) with SUI participated in this study.

A randomised controlled design was used. Before randomisation, the participants were stratified for severity of incontinence according to the 24h pad test in 2 groups. The experimental (n=10) received PFM-training and WBV-training. The participants in the control group (n=10) received only PFM-training. Two patients dropped out. Both groups followed a PFM program for twelve weeks consisting of once-a-week physiotherapy sessions, home exercises and exercises during daily activities. The experimental group followed the PFM-training in combination with an exercise program on a whole body vibration platform (Fitvibe). Training frequency on the WBV-platform was three times a week in sitting and standing position. Efficacy of training was measured by reports of incontinence (the 1h pad test, 24h pad test), quality of life (KHQ), and pelvic floor muscle strength and endurance (assessed by EMG and digital examination). Evaluation of the participants took place at baseline and at the end of the training period (after 12 weeks). The 24h pad test was done three times a week during the 12 weeks of training. Statistical analysis was performed using analysis of variance.

Results

There were no statistically significant differences found in urinary leakage measured by the 1h-and 24h pad test, between the experimental group and the control groups in pre and post scores ($p>0.05$). There was a considerable reduction in urinary leakage in both groups. There was no statistically difference found between the experimental and the control groups in pre- and post-experiment results of PFM strength and endurance assessed by digital examination and EMG ($p>0.05$). Both groups showed an improvement in muscle strength and endurance. The outcome of the King's health questionnaire indicated in both groups an improvement in quality of life in comparison to the initial scores, but no statistically difference were found between the experimental and the control groups ($p>0.05$).

Interpretation of results

There are no enhanced treatment effects as a result of WBV-training on women with SUI.

The negative result could have been caused by the already good results induced by PFM training, or the choice of the WBV training protocol for this study. The current scientific investigations on vibration training use a wide range of vibration protocols and loading (frequency, amplitude, length, position),parameters (3). The effect on the tonic vibration reflex caused by the different parameters is not sufficient understood. In addition, there was a low number of participants in the present study resulted in a weak power and it is therefore difficult to find significant results.

Concluding message

There is a need for further research based on interventions following principles from exercise science and with sufficient sample sizes.

References

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HUMAN SUBJECTS: This study did not need ethical approval because It was not necessary but followed the Declaration of Helsinki Informed consent was obtained from the patients.