90

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WHOLE BODY VIBRATION FOR THE PELVIC FLOOR MUSCLE TRAINING: PRELIMINARY TRIAL

Hypothesis / aims of study

Studies report that whole-body vibration (WBV) recruits about 95-97% of the muscle fibers, due to the oscillations generated by the vibrating platform, which can enable both surface and deep muscles. Lauper (2009) reports that the active vibration the muscles of the pelvic floor (PFM) which may improve your reflex stimulation and synergistic [1,2]. The objective of this study was to investigate the effect of whole body vibration on the activity electromyographic of PFM.

Study design, materials and methods

A controlled and prospective study was approved by the the regional Ethics Review Board.

All patients were evaluated with digital palpation and only patients who were able to contract the PFM were included in the study. Exclusion criteria were women who tinham sintomas uroginecologicos, had prior abdominal or pelvic surgery, pelvic organ prolapse, diabetes, hypertension, neurological abnormalities, myopathy, chronic lung diseases and presence of urinary tract infection.

Pelvic Floor Electromyography: PFM evaluated was registered using a surface electromyography equipment (EMG System do Brasil®, 400C model). The contraction of the PFM has been previously taught to the volunteer, requesting her to press the probe in cranial direction and observe its contraction on the computer screen. Each requested contraction, was performed with a rest period of twice the time of the performed contraction, in order to avoid muscle fatigue. Pelvic floor sEMG was recorded using a vaginal probe (Physio-Med Services®), which has two opposing metal sensors. The probe was inserted and manually positioned, by the researcher, with the metallic sensors placed laterally in the vagina. The reference surface electrode was positioned on the right wrist. PFM evaluation was performed putting the subjects in supine position, lower limbs flexed with the feet on the stretcher. The sensor was connected to the EMG equipment, that transmitted the electrical signals in microvolt (μv) to a notebook. EMG evaluation protocol consisted of three, maximal, voluntary PFM contractions, recorded by the vaginal probe. Each requested contraction, was performed with a rest period of twice the time of the performed contraction, in order to avoid muscle fatigue. Each contraction was recorded for 5 seconds, in microvolt and analyzed by root-mean-square (RMS)**.** The arithmetic mean of three RMSs was considered per analysis (3).

After evaluating the patients (n=21) were divided into two groups: the control group (CG) (n=11) which received a booklet with exercises of information that could be performed at home; and in whole body vibration training group (WBVG) (vibration plataform PulseVibe3/ n=10), which held 10 supervised sessions, individual, 2 times a week, lasting 30 minutes each. Six postures were performed with low frequency of 20Hz, time of 45 continuous seconds for each exercise and 45 seconds of rest.

Results

The most women reported being single, white skin color, higher educational level and absent labor activity. In relation to age and BMI, the WBVG possesses a mean age of 36.47 (± 8.87) years and BMI of 22.83 (± 3.33) and the CG showed a mean age of 30.45 (± 13 43) years and BMI of 24.19 (± 4.78).

The table 1 shows the values obtained by the sEMG pre and post intervention

Table1. Values of the activity electromyographic of pelvic floor muscles (AP) comparing pre and post training in both groups (*CG/ WBVG*):

	sEMG PFM pre Mean (±SD)	**sEMG PFM post Mean (±SD)**	**P Value Time (Power/Effect)**	**P Value Difference between groups**
Control group *(CG) (n=11)*	52,42 (±15,47)	45,91 (±16,74)	*0.15 (0.6/0.1)	**0,16
Whole body vibration training group *(WBVG) (n=11)*	44,04 (±18,64)	48,50 (±18,65)	*0.51 (0.5/0.4)	

SD = Standard Deviation

*Paired t test; **Unpaired t test.

Statistical analysis: The significance level was 5%.

Interpretation of results

Lauper (2009) (1), observed by sEMG that the PFM increased activity electromyographic of women in postpartum when evaluating intensities of 6-12 Hz. However, the training effect on the whole body vibration on the pelvic floor is still little known. Actually, scientific research is due to several vibration protocols which are related to device parameters (frequency, intensity and time) as well as the body composition of the patient, positioning, frequency of training among others. In the current study, there is still a low number of participants which resulted in a weak power and so it is difficult to find significant results. Thus, it was not possible to observe by means of electromyography significant differences over time in both groups (CG p= 0.15 and WBVG p=0.51). And yet, there was no significant difference between groups (p=0.16).

Concluding message

As preliminary study we still can't see if the whole body vibration training can encourage increased on activity electromyographic of the muscles pelvic floor.

References

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Disclosures

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