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WHOLE-BODY VIBRATION EXERCISE IN THE ELDERLY PEOPLE

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Most of femoral neck fractures in the elderly are caused by fall. Although exercise is considered to prevent fall by maintaining muscle power and balance and functional fitness, many old subjects are unable to exercise effectively. The aim of this study is to investigate the effects of the Whole body vibrations (WBV) in the elderly people.

Twenty-one people aged 72.6 years old attending health program in local community were included in this study. Eleven carried out the exercise (Ex.) by low frequency oscillation loading device (Galileo 900, Novotec Pforzheim Germany) and the other ten did not (Cnt.).

Ex. was exposed to a bout of the 20-30Hz vibrations standing on the platform 3 times a week. Calcaneal bone mineral density was measured using QUS (AOS-100, Aloka Japan), statical and dynamic balance test, functional fitness tests were performed before and after the 6 months exercise program.

Calcaneal bone mineral density did not differ between 1st and 2nd measurement, but balance-function improved significantly after 6 months exercise in Ex.

These results suggest that WBV possibly prevents fall and femoral neck fracture by improving standing balance in elderly subjects.

Source

<http://www.salixhost2.co.uk/osaka/abstracts/P506.htm>



X-PLATE

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Controlled Whole Body Vibrations Improve Health Related Quality Of Life In Elderly Patients

Category: 10 Orthopaedics, rehabilitation

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Objective: To investigate the effects of controlled whole body vibrations (CWBV) exercises on global health in elderly patients.

Methods: 42 volunteer patients, resident in a nursing home, were randomised to either a vibration group or control non-treated group. The vibration intervention consists of a 6-week CWBV training (4 x 1 minutes series, 3 times a week) employed by standing on a vertical vibrating (10 Hz in the first and the third series and 26 Hz in the second and fourth ones) platform (Galileo 900®).

Different validated tests were performed, at the beginning and at the end of the study, in all patients. Quality of life was assessed by the 9 subscales of the SF-36 questionnaire: physical function (PF), social function (SF), role emotional (RE), role physical (RP), mental health (MH), vitality (V), pain (P), general health (GH) and health change (HC). Quality of walking, as well as the balance were assessed by the Tinetti test. The “get-up-and-go” test was used to assess the motor capacity.



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Results: Baseline characteristics of the two groups (22 patients in the vibration group and 20 in the control non-treated group) was not statistically different except for age (84.5 (5.9) years in the treated group and 79.0 (6.9) years in the control group, $p=0.008$).

After 6 weeks of treatment, 7 items (PF, SF, RE RP, V, P, GH) of the SF-36 improved significantly in the CWBV group compared to the control group, with, for example, 143% of improvement in PF ($p=0.0002$ between the two groups), 41% in P ($p=0.004$), 60% in V ($p=0.0006$), and 23% in GH ($p=0.0002$). Improvement of 57% in the quality of walking, assessed by the Tinetti test, was also observed in the treated group compared to only 2% in the control group ($p=0.0003$).

For the equilibrium, improvement was 77% in the CWBV group and the worsening was 1% in the control group ($p=0.001$). Eventually, a decrease of 39% of the time to perform the get-up-and-go test was also observed, after 6 weeks, in the treated group, compared to an increase of 14% in the control group.

Conclusion: Fast and easy exercises, 3 times a week during 6 weeks, using a CWBV apparatus, could improve the quality of life, the walk, the balance and the motor capacity in elderly patients. Longer studies with more patients are needed to assess the impact of such benefits.

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<http://www.rheumatology.org/annual/abstracts/index.htm>

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Vibration therapy improves walk, balance in elderly

Orlando, FL - Controlled whole-body vibrations (CWBV) improve quality of life, walk, balance, and motor capacity in elderly patients, according to a new study reported at the annual meeting of the **American College of Rheumatology** [1].



Dr Olivier Bruyere

"All older patients in nursing homes—except those with any contraindications—could benefit from CWBV," says study researcher **Dr Olivier Bruyere** (University of Liege, Liege, Belgium). The apparatus costs roughly €8000, and treatment requires just 10 minutes a day.

Precisely how CWBV works is unclear, he says, but it may somehow improve balance or help build bone similar to the way that exercise does, he speculates.

As previously reported by **rheumawire**, vibration therapy is being investigated as an approach to the prevention and treatment of osteoporosis.

Good vibrations

In the new study, 42 volunteers in a nursing home were randomized to a vibration group or a nontreatment group for 6 weeks. The treatment group underwent 6 weeks of CWBV (4 one-minute series 3 times a week) on a vertical vibrating platform (10 Hz in the first and third series and 27 Hz in the second and fourth ones). The machine used was the Galileo 900® (Orthometrix Inc, White Plains, NY).

After 6 weeks of therapy, patients in the vibrating group showed:

- 143% improvement in physical function.
- 41% improvement in pain.
- 60% increase in vitality.
- 23% improvement in general health.
- 57% improvement in quality of walking as assessed by the Tinetti test (compared with a 2% improvement in control subjects).
- 77% improvement in equilibrium (compared with 1% worsening in controls).
- 39% decrease in time required to get up and go (compared with an increase of 14% among controls).

While it was only a small study, "after just 3 weeks or 9 sessions, we saw a great improvement in get-up-and-go," Bruyere tells **rheumawire**. "Longer studies are needed," he adds. Patients in the new study also did about 10 minutes a day of classical physical exercise.

Denise Mann

Source

1. Bruyere O, Wuidart, MA, et al. Presentation: Controlled whole body vibrations improve health related quality of life in elderly patients. Orlando, FL: American College of Rheumatology: 2003 meeting; October 23-28, 2003: Abstract 1271.

<http://www.jointandbone.org/lite.cfm?23u&%2Fnews%2F200311%2Fnews20031103b%2Ecfm>