

Onderzoek naar de effecten van trilstoeltraining op de cognitie van oudere mensen

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Whole Body Vibration (WBV) applied via a chair has positive chronic effects on cognitive function of older people.

Ethische beoordeling	Positief advies
Status	Werving gestart
Type aandoening	-
Onderzoekstype	Interventie onderzoek

Samenvatting

ID

NL-OMON29600

Bron

Nationaal Trial Register

Verkorte titel

Whole Body Vibration and cognition

Aandoening

Older people, aging

Ouderen, senioren, veroudering

Ondersteuning

Primaire sponsor: Performer: Center of Human Movement Sciences, University Medical Center Groningen, University of Groningen

Overige ondersteuning: Fund=initiator=sponsor

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Primary outcome measures are feasibility and cognitive function (executive functioning and memory) measured with neuropsychological tests.

Toelichting onderzoek

Achtergrond van het onderzoek

Rationale: With the aging of the population the number of people with cognitive disorders like Mild Cognitive Impairment (MCI) and dementia will increase dramatically. There is an urgent need for interventions to reduce or postpone the cognitive decline. Medication has limited effects and often negative adverse effects. Physical exercise is less suitable for the subpopulation who is physically impaired. Passive Whole Body Vibration (WBV) might be an efficient and cost-effective alternative. In young and older mice, WBV appeared to be effective in enhancing motor performance, learning, and memory. In humans there is evidence that WBV has acute effects on attention and set-shifting in young people and people with attention disorders. In older people this new approach to enhance cognition is not investigated yet. Therefore, a pilot study is proposed in which the feasibility of WBV and the effects on cognition will be explored in healthy older people.

Objective: The objectives of this pilot study are to investigate feasibility and effects of passive WBV in order to (1) reveal barriers and perspectives in both the recruitment and the execution phase that will facilitate subsequent research and (2) reveal effect sizes of the effects of WBV on cognitive functioning that can be used for sample size calculations to facilitate larger-scaled subsequent research

Study design: The study consists of a pilot study with a double blind randomized controlled trial design.

Study population: The study population includes healthy older people, aged 65 years or older.

Intervention: The experimental intervention consists of passive WBV applied via a chair, 4 session per week, 4 minutes per session during 5 weeks with a vibration frequency of 30Hz and an amplitude of 1mm using a therapeutic movement simulation platform of VitaCare. The control intervention is a placebo intervention with the same procedures as the experimental interventions but with a vibration frequency of 1Hz.

Main outcomes: The main outcome measures are feasibility (indicated by attendance, performance according to protocol and perceived comfort) and cognitive functioning measured with neuropsychological tests for executive functioning and memory.

Doel van het onderzoek

Whole Body Vibration (WBV) applied via a chair has positive chronic effects on cognitive function of older people.

Onderzoeksopzet

Measurements will be taken before the intervention (pretest), after 5 weeks (posttest), and 2 weeks after the completion of the intervention (follow-up test). One test (Stroop interference) will be assessed weekly.

Onderzoeksproduct en/of interventie

The experimental intervention consists of whole body vibration applied via a chair (device VitaCare) for 4 minutes per session, 4 times a week, during 5 weeks. The vibrations have a frequency of 30Hz and an amplitude of 1 mm.

The control intervention consists of the same protocol but with a frequency of 1Hz.

Contactpersonen

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen

(Inclusiecriteria)

- An age of 65 year or older
- Mini Mental State Examination (MMSE) score between 28-30.

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

- Wheelchair bound
- Serious cardiovascular problems (e.g. severe high blood pressure or cardiac problems)
- Cerebral trauma
- Epilepsy
- Rapidly progressive or terminal disease
- Degenerative neurological illness - a history of alcoholism or drugs abuse
- Depression
- Severe visual problems
- Severe auditory problems
- Problems with the Dutch language

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Factorieel
Toewijzing:	Gerandomiseerd
Blindering:	Dubbelblind
Controle:	Actieve controle groep

Deelname

Nederland
Status: Werving gestart
(Verwachte) startdatum: 01-03-2014
Aantal proefpersonen: 22
Type: Verwachte startdatum

Ethische beoordeling

Positief advies
Datum: 14-04-2014
Soort: Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

Geen registraties gevonden.

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL4381
NTR-old	NTR4512
Ander register	NL44727.042.13 : ABRnr

Resultaten

Samenvatting resultaten

Bautmans I., Van Hees E., Lemper J.C., Mets T. The feasibility of whole body vibration in

institutionalised elderly persons and its influence on muscle performance, balance and mobility: a randomised controlled trial. BMC Geriatrics, 5: 17, 2005.

Fuermaier AB, Tucha L, Koerts J, van Heuvelen MJ, van der Zee EA, Lange KW, Tucha O. Good vibrations--effects of whole body vibration on attention in healthy individuals and individuals with ADHD. PLoS One 2014 Feb 28;9(2):e90747. doi: 10.1371/journal.pone.0090747.

Lahr M.M.H., Postema F., Venema B.J., Luiten P.G.M., Riedel G., Van der Zee E.A. Whole body stimulation functions as a cognitive enhancer in young and old mice. ENP, 2009.

Regterschot G.R.H., van Heuvelen M.J.G., Zeinstra E.B., Fuermaier A.B.M., Tucha L., Koerts J., Tucha O., van Der Zee E.A. Whole body vibration applied via a chair improves cognition in healthy young adults (under revision).

Zee van der EA, Riedel G, Postema F, Venema BJ, Keijser JN. Whole Body Vibration and spatial learning. cFos and ChAT as neuronal correlates of cognitive improvements. Proceedings of Measuring Behavior 111-112, 2012.