there was a three-way interaction between task type, switch, and group (p = .022): "supervets" responded faster than controls when switching from the harder color-naming trials to the easier word-naming trials. Whereas controls showed a reaction time cost on these switch trials, "supervets" showed no reaction time cost. **Conclusions:** Our results suggest that "supervets" with many years of high-intensity exercise do not demonstrate robust cognitive benefits from this exercise regime, in comparison with matched controls. Where differences exist, they do not systematically favor the 'supervets'. Further study is needed to determine why long-term exercise regimes may not advantage cognition. One possibility is that long-term high-intensity PA affects neuromodulators in ways that offset the advantageous effects seen with short-term exercise.

P4-393 MUSIC THERAPY WITH MODERATE ALZHEIMER'S DISEASE IN A LONG-TERM CARE CENTER

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Background: Music therapy is a potential non-pharmacological treatment for behavioral and psychologic symptoms (BPSD) of dementia., However, although some studies have found it to be helpful, studies demonstrating the effectiveness of this approach are lacking. The purpose of this study was to reflect about the effects of the music therapy with moderate Alzheimer's disease. **Methods:** This case-control study was carried out by music therapists in four long-term care center. The participants were 82 patients with moderate Alzheimer's disease (CDR=2.0 or 3.0) assigned randomly to a music therapy group and a control group. 120 participant with dementia were randomized to a sequence of 12 weeks of music therapy. The session of music therapy has four music activity types-rhythm playing with Korean instrument, exercising with music, singing of old Korean pop and conversational session with the special songs and singer. The aim of this study was to examine the effect of music therapy on agitation and to explore its effect on psychotropic medication and caregiver burden. **Results:** The study showed a significant reduction in activity disturbances in the music therapy group during a 12-week period measured with Alzheimer's Disease Rating Scale (BEHAVE-AD). Agitation disruptiveness increased during standard care and decreased during music therapy. Short Zarit Burden Inventory(S-ZBI) and the prescription of antipsychotics decreased significantly more often during music therapy than during stand care. **Conclusions:** Music therapy is a safe and effective method for treating agitation in moderate AD and also a reduction for caregiver burden in long-term care center.

P4-394 VITAMIN D AND INCIDENT ALZHEIMER'S DISEASE IN THE CARDIOVASCULAR HEALTH COGNITION STUDY

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Background: Vitamin D is vasoprotective, promotes amyloid phagocytosis and clearance, and supplementation protects against age-associated cognitive decline in vitamin D deficient rats. A recent meta-analysis confirmed that vitamin D levels are lower in Alzheimer's disease (AD) patients, though the prospective association with incident AD is not known. **Methods:** We investigated whether low serum 25-hydroxyvitamin D (25[OH]D) levels were prospectively associated with an increased risk of incident AD in the US population-based Cardiovascular Health Cognition Study. 1,653 adults aged ≥ 64 years who were free from prevalent dementia, cardiovascular disease and stroke had blood samples collected in 1992-93 and were assessed for dementia over a mean of 5.6 years (SD=1.2). 59 participants with mixed or vascular dementia at follow-up and 10 unclassified dementia cases were excluded, leaving 1,584 participants. 102 participants developed AD which was diagnosed according to the National Institute of Neurological and Communicative Diseases and Stroke-Alzheimer's Disease Related Disorders Association (NINCDS-ADRDA) criteria by a committee of neurologists and psychiatrists on the basis of annual cognitive assessments, repeat MRI scans, medical records, questionnaires and proxy interviews. Serum 25(OH)D concentrations were measured using mass spectrometry at baseline. Cox proportional-hazards models were used to determine the relationship between serum 25(OH)D and incident AD whilst adjusting for age, sex, education, season of blood sample collection, alcohol consumption, depressive symptoms and body mass index. **Results:** The multivariate adjusted hazard ratio (95% confidence interval [CI]) of incident AD in participants who were severely serum 25(OH)D deficient (<25 nmol/L) and deficient (25 to <50 nmol/L) in comparison to sufficient (≥50 nmol/L) was 2.23 (95% CI, 1.03-4.82) and 1.64 (95% CI, 1.03-2.60) respectively, with a significant linear trend across categories (p =.009). This corresponds to an unadjusted incidence of AD of 11.3% in severely serum 25(OH)D deficient versus 5.0% in serum 25(OH)D sufficient participants. **Conclusions:** The risk of incident AD is more than doubled in elderly US adults with severe vitamin D deficiency, and more than 60% higher in those deficient. Clinical trials are warranted to investigate the possible efficacy of vitamin D supplements for the primary or secondary prevention of AD in elders with low vitamin D levels.

P4-395 THE IMPACT OF 2Y B-VITAMIN SUPPLEMENTATION ON COGNITIVE PERFORMANCE: THE B-PROOF STUDY

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Background: Nutrition has been recognized as a modifiable risk factor in cognitive decline. Vitamin B12 and folic acid, both involved in the homocysteine pathway, are promising in maintaining cognitive functioning; however, evidence from RCTs is limited and equivocal. Furthermore, the combination of both vitamins has hardly been studied. Therefore, we investigated the cross-sectional association between vitamin B12 status and cognition, and the impact of 2 years vitamin B12 and folic acid supplementation on cognitive performance in elderly people through a double-blind, randomized placebo-controlled trial. **Methods:** The study population (n=2919) included elderly (≥65 y) with elevated homocysteine levels (≥12µmol/L). Participants received either a tablet with 500 µg vitamin B12 and 400 µg folic acid daily, or a placebo tablet. Both tablets contained 15 µg (600 IE) of vitamin D. Cognitive performance was assessed in a subsample with a neuropsychological test battery covering four cognitive domains: episodic memory (n=2919), attention and working memory (n=856), information processing speed (n=856), and executive function (n=856). Multiple Linear Regression analysis was performed to assess cross-sectional associations between vitamin B12 status, by using a combination of the biomarkers serum vitamin B12, homocysteine, holo-transcobalamin and methylmalonic acid, and cognitive performance. ANCOVA will be used to determine differences between intervention and placebo group over time. **Results:** Mean age was 74 (SD 6.6) and MMSE-score was 28 (IQR 27-30). Cross-sectional analyses showed that a poor vitamin B12 status was associated with a lower performance on information processing speed (β =0.103, p=0.03) and episodic memory (β =0.048, p=0.04). We will present results of the intervention effects as well, but at time of writing we are still working on these data analyses and de-blinding of the treatment will take place shortly before the congress. **Conclusions:** Cross-sectional associations showed an association