

Bilingualism and executive functions: The effect of age



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Keywords: Bilingualism; Executive functioning; Flexibility; Inhibition and updating

Introduction.— Numerous studies have been comparing the cognitive and executive functioning of bilingual and monolingual subjects. We have already presented former results (SOFMER 2010/2013) showing an advantage for bilinguals (adolescent/adults) in several tasks calling for the executive components according to Miyake's model (2000) and according to modality (verbal vs. non-verbal).

Aim.— Investigate the effect of age by comparing the executive functioning of bilingual and monolingual younger and older adults.

Methods.— The scores of 29 bilingual adults (19 aged from 18 to 40, 10 aged from 41 to 65) were compared to those of 30 monolingual adults matched on age and certain socio-demographic variables. Protocol: verbal and non-verbal tasks assessing the 3 components: flexibility (verbal and graphic fluencies), updating (Updating test) and inhibition (Go/noGo).

Results.— The analysis of variance with four factors (language; age; executive components; material) shows a quadruple interaction: overall, older bilinguals obtain better results than the younger ones for flexibility, updating and partly inhibition, unlike monolinguals.

Discussion/Conclusion.— Our results are consistent with those in the literature showing a neuro-protective effect of bilingualism. They will be discussed in relation to those obtained earlier (adolescents/adults) showing that those executive skill profiles evolve with age.

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Posters

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Effectiveness of exercise to reduce falls and injuries in elderly people



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Introduction.— Falls are a major source of death and injury in elderly people, and are one of the leading causes of disability in that population. About 30% of persons over the age of 65 who live in the community fall each year. Strategies for reducing the frequency of this common cause of mobility and mortality are needed. Physical exercise acts over muscle-skeletal function, cardio-circulatory, respiratory, metabolic, immunological and psycho-neurological. Regular exercise may prevent falls and fall-related fractures. Nevertheless it is a great controversy around exercise prescription regarding kind, frequency, intensity and duration of the exercise necessary to prevent falls.

Objective.— To assess the effectiveness of programmed exercise to reduce falls and injuries in elderly people.

Methods.— Different sources of search have been used: Scientific Pub Med-Medline, Pedro, Cochrane Library and magazines.

Results.— There is strong evidence that exercises programs can reduce fall rates in older people. Balance training, strengthening exercises, muscle endurance and walking programs must be included. Combined frequency of exercise on a weekly basis with program length is superior discriminating between less-

length when analyzed separately.

Conclusion.— Evidence with Tai-Chi exercises has been found.

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Interest of assessment and rehabilitation by visual biofeedback in treatment of postural trouble of fallers' elderly subjects



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Keywords: Elderly subjects; Falls; Posturography; Rehabilitation

Objective.— To determine the postural pattern connected with fall in elderly subjects and to evaluate the effects of biofeedback training in rehabilitation of balance.

Material and methods.— Thirty-four elderly subjects took part in this study: 14 in the first group of fallers, 20 in the second group of non-fallers.

A comparative study between the two groups was effected; assessment consisted of a clinical appraisal and posturographic analysis with forceplate.

The second time is a prospective trial with the elderly subject fallers who benefit from rehabilitation program with visual biofeedback. Clinical and forceplate assessments were performed before and after the program of rehabilitation. Also, the patients were asked if a fall has been happened on a decline of 12 months.

Results.— Significant differences were observed in specific tests of fall and in posturographic analysis between the two groups. We observed an improvement in clinical tests and posturographic analysis in elderly subjects fallers after a program of rehabilitation with visual biofeedback. Ten patients did not fall during the 12 months back.

Conclusion.— The use of visual biofeedback training looks as interesting in rehabilitation of balance in elderly subjects who have had fall.

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Functional valoration of physical activity program in older adults with musculoskeletal disorders



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Keywords: Exercise program; Pain; Disability; Older people

Introduction.— Musculoskeletal disorders are a cause of disability in older adults. The aim of this study was to evaluate the effectiveness of a physical activity program.

Methods.— Prospective observational study involving 160 outpatients after exercise program during 10 months. Variables: age, hours of sport at week, previous analgesia. The evolution of pain, functional status and physical condition were measured with Visual Analogic Scale (VAS), SF-12 questionnaire (SF-12) and Senior Fullerton Fitness Test (SFFT), respectively.

Results.— Median age: 66.03 years (55.3; 69.7). Exercise: 6.75 (3.43; 10.07) hours per week. Age of onset in the sport: 56.6 (43.4; 69.8) years. Sixty-five percent decreased analgesic consumption. Musculoskeletal pathology: 25% back, 24.37% neck and knee pain. After physical activity program, statistically significant results ($P < 0.0.1$) were found in reducing pain relief (initial VAS = 5.82; final = 2.83); greater values were obtained in the general health

dimension ($P = 0.031$) with the SF-12 and improvement in the physical condition in the SFFT.

Discussion.— Supervised exercise program appears to have beneficial effects in older people with musculoskeletal pathology, in terms of improvement in pain and functional status as well as decreasing use of drugs.

Further reading

Gudlaugsson J, Gudnason V, Aspelund T, Siggeirsdottir K, Olafsdottir AS, Jonsen PV, et al. Effects of a 6-month multimodal training intervention on retention of functional fitness in older adults: a randomized-controlled cross-over design. *Int J Behav Nutr Phys Act* 2012. 9:107. doi: 10.1186/1479-5868-9-107.

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Effectiveness of for- and backward gait in rehabilitation of patients with senile osteoporosis

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Keywords: Osteoporosis; Physiotherapy; Gait

Introduction.— The decrement of individual risk of fractures is important aim of senile osteoporosis treatment. The aim of study was analysis of useful of two rehabilitation programs.

Material and methods.— The study group consists of a group of 61 women in the age from 65 to 84 years. Fifty female (average age -72.5 ± 5.8) with senile osteoporosis was qualified for further analysis. Specific randomization was used for division into two groups: Model 1—the comprehensive physiotherapy and training of forward gait (25 female), Model 2—comprehensive physiotherapy and training of a backward gait (25 female). The short-term rehabilitation was applied (in hospital for 3 weeks) and long term (home—up to 4th months after leaving hospital) was applied. In three stages following tests were marked: muscle strength, value of thoracic kyphosis, TUG test, TINETTI's test.

Results.— Improvement after hospital rehabilitation was achieved in both groups. Long-term positive effect was observed in Model 2.

Conclusion/Discussion.— Appliance of rehabilitation in senile osteoporosis indicates improvement of muscle strength, balance and gait. Improvement is more significant when backward gain was applied.

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Urinary dysfunction and frailty in elderly

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Keywords: Frailty; Urinary dysfunction; Standardized geriatric evaluation; Elderly

Objective.— To analyze the frailty components in an elderly population who was referred for investigation of urinary dysfunction.

Methods.— Retrospective, monocentric analysis. Sixty-one patients, 75 years or more had urodynamic testing and standardized geriatric evaluation which investigated daily activity, depression, balance, dementia, cardiac or neurological disease.

Results.— During 2012–2013: 49 women (82 ± 3 years) and 12 men (80 ± 4 years). No specific correlation between one co-morbidity and urinary dysfunction. Lower number of co-morbidity was associated with dysuria, higher with retention and mixed incontinence. The only group in which the percentage of depressed patient was predominant was that which had the syndrome hyperactivity with impaired contractility of the detrusor (no significant).

Conclusion.— The standardized geriatric evaluation allows to bring to the fore the frailty syndrome in elderly, but is no contributive to predict the kind of incontinence and its mechanism [1].



Reference

[1] Kraus SP, et al. Vulnerable elderly patients and overactive bladder syndrome. *Drugs Ageing* 2010;27:697–713.

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Effects of different interventions on falls and falls-related functional factors in veteran elderly: A pilot randomized controlled trial

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Keywords: Falls; Elderly; Intervention; Randomized control trials; Whole-body vibration; Balance training; Health education

Introduction.— Falls are particularly common among older people. The aim of this pilot randomized controlled trial was to evaluate the effects of whole-body vibration training (WBV), balance training at home (BTH), health education of falls (HEF) on the falls and falls-related mobility function, balance and general health status in veteran elderly.

Methods.— One hundred and twenty older subjects with fall history were randomly assigned to the WBV + HEF group, BTH + HEF group, HEF group and control group. The intervention period was 12 weeks. The TUGT, FTSST, lower extremities muscle strength, balance function, balance confidence, ADL, IADL, general health status and frailty status were assessed at the beginning and after 12 weeks of the intervention. SPSS17.0 was used for data management and analysis.

Results.— WBV + HEF reduced the time of TUGT and FTSST, improved the bilateral knees extensor strength, balance, ADL, IADL and general health status ($P < 0.05$); BTH + HEF improved the balance ability, balance confidence and general health status ($P < 0.05$); HEF improved the general health status ($P < 0.05$); and No effects were observed in control group ($P > 0.05$).

Discussion and conclusions.— WBV, BTH, and HEF are safe and effective in improving the falls-related mobility function and the general health status in elderly.

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Aging, Osteoarthritis, Sarcopenia and Rehabilitation – Evidence-based review

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Keywords: Aging; Sarcopenia; Osteoarthritis; Rehabilitation

Introduction.— Aging is related to some of the most frequent musculoskeletal pathologies. Osteoarthritis (OA) is a degenerative condition that results from lesions on hyaline cartilage, synovial membrane and subchondral bone. Sarcopenia (SC) is a progressive loss of muscle mass, strength and function. We review the evidence of OA and SC age-relation and searched for the rehabilitation evidence in this triad.

Methods.— Pubmed research, Mesh terms method, with the following key words aging, sarcopenia, osteoarthritis and rehabilitation. English published articles included.

Results.— Nineteen articles identified with words aging, OA and SC. 3 articles identified with four key words. Two non-English articles excluded. According to evidence, aging is the most important risk factor for the development and progression of OA. With aging there are mechanical, molecular, cellular, inflammatory and metabolic modifications at muscle and articular levels, which contribute to OA and SC progression. If on one side SC compromises articular stability, on the other OA articular dysfunction promotes reflex muscular atrophy. Active life style, articular ROM and muscle strength allow an increase of functional lifetime in the elders.

