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INTAKE OF SOYBEAN AND SOYBEAN PRODUCTS IS THE MOST CRITICAL FACTOR FOR PREVENTION OF VASCULAR AGING AMONG JAPANESE ELDERLY

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Objectives: Vascular aging is the main pathogenic factor for heart and cerebrovascular disease. It is a critical challenge to prevent vascular aging in the rapidly aging Japanese society. This study was carried out to examine the impact of dietary habits on the progression of vascular aging in elderly Japanese individuals.

Materials and Methods: Subjects were 12 healthy males and females aged 63 to 71years who gave consent to participate in the present study. Vascular aging was evaluated by the second derivative of the fingertip photoplethysmogram, and the subjects were divided into two groups: Group I (vascular age was younger than actual age over 10 years, n=6) and Group II (vascular age was almost actual age which is within 5 years, n=6). Subjects took photos of all dishes consumed for 7 days to investigate their dietary habits. We collected information of types of foods and the amounts from the photos, and entered this information into a Food Frequency Questionnaire based on Food Group (FFQg) to analyze the data.

Results: Group I showed significantly greater ($p < 0.05$) intakes of protein (Group I, 77.0 ± 6.0 g/day; Group II, 64.0 ± 11.7 g/day), polyunsaturated fatty acids (Group I, 13.5 ± 2.3 g/day; Group II, 10.5 ± 2.2 g/day), iron (Group I, 8.1 ± 0.9 mg/day; Group II, 6.7 ± 1.1 mg/day), and zinc (Group I, 8.2 ± 0.8 mg/day; Group II, 7.2 ± 0.9 mg/day). Also Group I showed significantly higher body mass index (BMI, Group I, 23.8 ± 2.1 m2/kg; Group II, 20.5 ± 1.1 kg/m2). Despite no significant difference in the intake of seafood (Group I, 108.0 ± 36.0 g/day; Group II, 99.5 ± 38.0 g/day) containing large amounts of n-3 fatty acids, Group I showed a significantly greater ($p < 0.05$) intake of soybeans and processed soybean products (93.0 ± 24.8 g/day) than Group II (56.0 ± 28.0 g/day).

Conclusion: Intake of soybeans and processed soybean products was considered the most effective measure for preventing the progression of vascular aging in the elderly subjects who participated in this study.

THE IMPORTANCE OF PHYSICAL EXERCISE FOR BRAIN PLASTICITY

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Physical activity has been shown to exert a protective effect against cognitive deterioration, particularly among individuals who have undertaken regular aerobic exercise since adulthood and midlife. According to experimental studies, regular exercises may improve signaling pathways related to brain plasticity, for instance, angiogenesis and synaptogenesis, as well as potential neurogenesis in the subgranular zone of dentate gyrus of hippocampus. The question whether the same effects from physical exercise may interfere on human brain plasticity remains a challengeable issue to be clarified. Biological mechanisms of neuroplasticity related to physical exercise may involve increased levels of several neurotrophins such as Brain Derived Neurotrophic Factor (BDNF). The present study is part of a larger initiative to address the effects of physical activity on global health parameters conducted at a university facility. The present analysis refers to a controlled intervention study conducted in a sample of non-demented older adults. The intervention consisted in a multimodal aerobic training program that was administered for a period of 16 weeks. Baseline and endpoint assessments were performed in a single-blinded model. In our study, the improvement of serum BDNF levels induced by the practice of aerobic exercise strengthens its role of exercise with a potential improvement mechanisms cognitive function of elderly. Moreover, increased levels of BDNF could be associated with cognitive improvement as established by previous investigations. The doubt whether outcomes from aerobic exercise on biological markers, cognition or functionality remain for extended period after the intervention was ended is an important question to be clarified.