

Bio-Psycho-Social Consequences and Effects in Fall-Efficacy Scale in Seniors Using Exercise Intervention of Motor Learning According to Yoga Techniques

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Abstract : The paper declares effects of exercise intervention of the research project "Basic research of balance changes in seniors", granted by the Czech Science Foundation. The objective of the presented study is to define predictors, which influence bio-psycho-social consequences and effects of balance ability in senior 65 years old and above. We focused on the Fall-Efficacy Scale changes evaluation in seniors. Comprehensive hypothesis of the project declares, that motion uncertainty (dyskinesia) can negatively affect the well-being of a senior in bio-psycho-social context. In total, random selection and testing of 100 seniors (30 males, 70 females) from Prague and Central Bohemian region was provided. The sample was divided by stratified random selection into experimental and control groups, who underwent input and output testing. For diagnostics the methods of Medical Anamnesis, Functional anthropological examinations, Tinetti Balance Assessment Tool, SF-36 Health Survey, Anamnestic comparative self-assessment scale were used. Intervention method called "Life in Balance" based on yoga techniques was applied in four-week cycle. Results of multivariate regression were verified by repeated measures ANOVA: subject factor, phase of intervention (between-subject factor), body fluid (within-subject factor) and phase of intervention \times body fluid interaction). ANOVA was performed with a repetition involving the factors of subjects, experimental/control group, phase of intervention (independent variable), and \times phase interaction followed by Bonferroni multiple comparison assays with a test strength of at least 0.8 on the probability level $p \leq 0.05$. In the paper results of the first-year investigation of the three years running project are analysed. Results of balance tests confirmed no significant difference between females and males in pre-test. Significant improvements in balance and walking ability were observed in experimental group in females comparing to males ($F = 128.4$, $p \leq 0.001$). In the females control group, there was no significant change in post-test, while in the female experimental group positive changes in posture and spine flexibility in post-tests were found. It seems that females even in senior age react better to incentives of intervention in balance and spine flexibility. On the base of results analyses, we can declare the significant improvement in social balance markers after intervention in the experimental group ($F = 10.5$, $p \leq 0.001$). In average, seniors are used to take four drugs daily. Number of drugs can contribute to allergy symptoms and balance problems. It can be concluded that static balance and walking ability of seniors according Tinetti Balance scale correlate significantly with psychic and social monitored markers.

Keywords : exercises, balance, seniors 65+, health, mental and social balance

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