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PHYSICAL ACTIVITY AND ANTIOXIDANT VITAMINS FOR THE ELDERLY: BENEFICIAL EFFECTS OF A LONG-TERM DIETARY TREATMENT WITH ANTIOXIDANT VITAMINS ON THE PROOXIDANT EFFECTS OF PHYSICAL ACTIVITY IN A LARGE-SCALE STUDY IN AGED HEALTHY PEOPLE


Physical exercise programmes for the elderly are an useful strategy to mitigate the functional decline associated with ageing. However, unsuitable exercise and aging share oxidative stress as a common underlying mechanism.

AIMS: 1) to investigate whether the long-term practice of programmed physical activity (2 cycles over 2 years, 30 weeks/cycle, 3 sessions/week, 50 min/session) causes oxidative stress in a population of elderly people and, 2) to evaluate the efficacy of a simultaneous nutritional antioxidant treatment for antagonising the exercise-induced oxidative stress. The nutritional antioxidant treatment consisted of the daily intake of a functional drink, BIOFRUTAS®, a blend of milk and natural fruit juices enriched with the antioxidant vitamins E, C and A. The study was carried out in 400 aged subjects (306 women and 94 men, 58-86 years), divided into 3 random groups: Control, Exercise and Exercise plus Antioxidants (EXER+ANTIOX).

RESULTS AND CONCLUSIONS: In the Exercise group the means levels of blood GSSG (+34%), plasma TBARS (+14%) and carbonyl proteins (+16%), and the content of 8-OHdG of leukocytes were significantly increased by the exercise. Significantly, in the EXER+ANTIOX group, the exercise-induced lipid peroxidation and plasma proteins oxidation were not observed, the GSSG and GSH/GSSG ratio values were normalized and the DNA oxidation partially prevented.