

DESCRIPTION FOR THE GENERAL PUBLIC

The aim of the project is to verify whether supplementation with omega-3 fatty acids will contribute to changes in myokines secretion and other exercise - induced peptides in training men. Studies conducted in the last decade has proven that proteins such as myokines and adipokines play an important role in the communication between muscle tissue or adipose tissue and other organs. The area of science that has not been explored until now, is a relationship between nutrition and supplementation and the secretion of these proteins. The effect of supplementation with omega-3 acids on the secretion of BDNF, cathepsin B (CTSB), osteocalcin, irizin, adiponectin and Il-6 seems to be particularly interesting in physically active people. Despite a number of reports about beneficial effects through supplementation with omega-3 acids and the evidence for their deficiency in the diet of modern people, there is no long-term studies on their use. The proper time of supplementation is crucial in this matter, due to the fact that after 3 months of supplementation, there is a significant increase in the concentration of docosahexaenoic acid (DHA) in the blood, which belongs to the family of omega-3 acids. In addition, it is important to select a supplements with high quality. The reason for this are the reports showing that some of the omega-3 supplements contain significantly less fatty acids than amount declared by the producer as well as compounds unfavorable for the human body. Based on the available literature, we assume that the 3-months supply of a supplement with scientifically proven composition will contribute to the increase in the concentration of omega-3 acids in the blood, which will be accompanied by changes in BDNF, cathepsin B (CTSB), irizin, osteocalcin, adiponectin and Il-6 levels in both physically active and non-training people. We also assume that the results obtained will be more visible in the training group. Taking into account beneficial effect on the metabolism of fats in the body, we also suppose that supplementation with omega-3 acids will influence on the increase in the use of fats as an energy source during the exercise test. The project will be attended by 80 men aged 30-45. The group will be divided into four subgroups:

- a) Runners receiving omega-3 supplements in the amount of 1g/day
- b) Runners not receiving omega-3 supplementation
- c) Inactive men receiving omega-3 supplementation in the amount of 1g/day
- d) Inactive men without omega-3 supplementation

Blood collection to assess the omega-3 content and analysis of the relevant proteins will be carried out before, after 6 weeks of supplementation and after a 3-month period. The assessment of the omega-3 content in the blood serum will be performed using gas chromatography (CG). In order to determine the concentrations of selected proteins, an enzyme immunoassay - ELISA tests will be used. The amount of fats used during the exercise test will be assessed on the basis of the formula quoted by prof. Asker Jeukendrup. The obtained results will allow to broaden the knowledge on the impact of nutrition on the mechanisms of communication between various organs of the body, as well as allow for the formulation of preliminary, practical recommendations for supplementation with omega-3 fatty acids.