

## The Impact of Protein Content on Athletes' Body Composition

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**Abstract :** Several factors contribute to success in sport and diet is one of them. Evidence-based sport nutrition guidelines underline the importance of macro- and micro-nutrients' balance and timing in order to improve athlete's physical status and performance. Nevertheless, a high content of proteins is commonly found in resistance training athletes' diet with carbohydrate intake that is not enough or not well planned. The aim of the study was to evaluate the impact of different protein and carbohydrate diet contents on body composition and sport performance on a group of resistance training athletes. Subjects were divided as study group (n=16) and control group (n=14). For a period of 4 months, both groups were subjected to the same resistance training fitness program with study group following a specific diet and control group following an *ad libitum* diet. Body compositions were evaluated through anthropometric measurement (weight, height, body circumferences and skinfolds) and Bioimpedance Analysis. Physical strength and training status of individuals were evaluated through the One Repetition Maximum test (RM1). Protein intake in studied group was found to be lower than in control group. There was a statistically significant increase of body weight, free fat mass and body mass cell of studied group respect to the control group. Fat mass remains almost constant. Statistically significant changes were observed in quadriceps and biceps circumferences, with an increase in studied group. The MR1 test showed improvement in study group's strength but no changes in control group. Usually people consume hyper-proteic diet to achieve muscle mass development. Through this study, it was possible to show that protein intake fixed at 1,7 g/kg/d can meet the individual's needs. In parallel, the increased intake of carbohydrates, focusing on quality and timing of assumption, has enabled the obtainment of desired results with a training protocol supporting a hypertrophic strategy. Therefore, the key point seems related to the planning of a structured program both from a nutritional and training point of view.

**Keywords :** body composition, diet, exercise, protein

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