Physiology & Immunology Paralell Oral Session
Friday, September 15th, 14h00

PS099

Differences in aerobic capacity and spirometric parameters between athletes and nonathletes

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Aim: To investigate if there are differences in aerobic capacity and spirometric parameters between athletes and nonathletes, and also differences in these parameters between anaerobic and aerobic athletes.

Introduction: Physical fitness is defined as ability of organism to increase level of metabolic processes due to increased level of metabolic needs. Aerobic capacity is measured by maximum level of oxygen consumption (VO2max), and it can be expressed by absolute (l/min) or relative (ml/kg/min) value. Pulmonary capacity has great evaluation importance for sport and health of general population.

Methods: Number of participants was 45 males, aged 18–35 years, divided into 2 groups: athletes and nonathletes. Athletes were divided by sport type in aerobic and anaerobic group of athletes. Testing was consisted of anthropometric measuring, spirometry and measuring of aerobic capacity on ergobycicle with mask, by principle of ramp test.

Results: Value of VO2max in group of athletes (55.46 ml/kg/min, $p < 0.05$) was significantly greater than in group of nonathletes (37.78 ml/kg/min, $p < 0.05$). Compared between all groups, VO2max showed significant difference in both aerobic (58.88 ml/kg/min, $p < 0.05$) and anaerobic (52.04 ml/kg/min, $p < 0.05$) athletes in relation to nonathletes (38.78 ml/kg/min, $p < 0.05$). Spirometric parameters (FVC, FEV1) were significantly greater in group of nonathletes (5.481 L, 4.951 L, $p < 0.05$) than in group of athletes (4.874 L, 4.635 L, $p < 0.05$). Compared between all groups, we found significant difference in FVC between group of nonathletes (5.481 L, $p < 0.05$) and anaerobic athletes (4.807 L, $p < 0.05$), and in Tiffeneau index between group of anaerobic athletes (97.29%, $p < 0.05$) and nonathletes (90.82%, $p < 0.05$).

Conclusion: Values of anthropometric parameters are greater in group of nonathletes. Differences in body weight and body mass caused greater values of FVC and FEV1 in group of nonathletes. Values of aerobic capacity are increasing with training. The greatest values of aerobic capacity are shown by aerobic athletes.

Acknowledgements: To Department of Physiology, Faculty of Medicine, Novi Sad for using their resources; To Athletic Club "Vojvodina", Novi Sad and Triathlon Club "Tryogy" for participating; To Assist. Proff. Aleksandar Klašnja for mentorship.[1–15]

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http://dx.doi.org/10.1016/j.pbj.2017.07.022

PS070

The assessment of body composition, energy demands and muscle strength in people on different dietary regimes

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Aim: The aim of this study was to determine whether there are any differences in body composition, energy demands and muscle strength between people on different dietary patterns.

Introduction: There are numerous types of diets: vegan, vegetarian, and non-vegetarian. Considering the dietary pattern, the assessment of the body composition and determining the resting metabolic rate are a major challenge for many researchers. Regarding the muscle strength of physically inactive participants related to dietary patterns, there is no current data in literature.

Methods: The study was conducted at the Department of Physiology, Faculty of Medicine University of Novi Sad from November 2016 to February 2017. The study included 45 healthy, physically inactive randomly selected respondents (15 vegans, 15 vegetarians, 15 on a mixed diet) aged 20–30 years. All respondents practiced their dietary regime for at least 6 months before research. Firstly, the anthropometric measurements were done, and later the body composition was assessed using bioelectrical impedance and by measuring skin folds. The resting metabolic rate was estimated using the indirect calorimetric method. The muscle strength was determined using the isoaccelerating dynamometer.

Results: The values of body mass index (BMI) between the group on a mixed diet (23.9 ± 2.95 kg/m^2) and vegans (20.8 ± 2.58 kg/m^2) showed a statistically significant difference ($p < 0.05$). The BMI (21.3 ± 2.63 kg/m^2) for vegetarians did no differ from the other groups. Statistically significant differences between groups in other parameters of body composition, resting metabolic rate and muscle strength were not found. A negative correlation was observed between total body fat, resting metabolic rate and muscle strength in all groups.

Conclusion: Diet differences between tested groups affected only the value of BMI between vegans and non-vegetarians. The impacts of different diets on other parameters of body composition,