

STRATIFICATION OF WOMEN ACCORDING TO BODY COMPOSITION INDICATOR, EVALUATION OF OBESITY PREVALENCE

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Abstract

Obesity is connected with the specific and various determinants of human body composition that complicate the identification of the most applicable way how to determine the changes. The aim of the research work was to evaluate the body composition and to stratify the women according to body fat content and body mass index (BMI).

The specific aim was to determine the selected indexes of nutrition and hydration in set of 50 women aged 22.26 ± 1.14 years. The multi-frequency bioelectrical impedance analysis and equipment InBody 720 (Biospace, Korea) were used. For statistical evaluation we used ANOVA test using statistical software Statistica 10.0 (StatSoft Inc., USA). P-values < 0.05 were considered statistically significant. Normality of distribution was tested using Shapiro-Wilk test.

The most prevalent group were women with optimal weight, we observed the most significant difference in fat mass content (38% ranged 18 - 28% fat mass) and according to BMI (70% ranged 18.5 - 24.9 kg/m²). On the basis of two parameters the set was stratified: lean (42%), latent obesity (34%), and obesity (24%). In term of latent obesity and obesity we recognized significantly ($p < 0.001$) higher body weight and waist to hip ratio. Within the group of obese women we noticed higher value of bone mineral content (2.98 ± 0.32 kg). In group of lean women we determined the lowest value of body cell mass (determinant of amount of metabolic active tissue), which had graduated tendency from lean (27.64 ± 3.05 kg) up to obese women (31.79 ± 3.01 kg) ($p < 0.001$). In the similar way we observed significant raising of intracellular, extracellular and total body water. Fat free mass (kg) increased from the lean group up to the obese group. Fat free mass (%) represented the highest proportion in lean women, followed by latent obese and obese women ($p < 0.001$). In the group with latent obesity and obesity we found out the significantly ($p < 0.001$) higher values of extracellular mass/body cell mass than in the lean group. In the case of index of body water retention (extracellular/total body water) we determined values in the reference range (0.360 to 0.390).

Our results indicate the potential use of the evaluated parameters in young women in clinical evaluation and assessment of health risk factors. The research work pointed to importance of knowledge of body composition for identification of health and nutrition status.

Key words: *Body composition, Body fat, Body mass index, Nutrition indexes, Hydration indexes, Obesity, Women.*