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HYGIENIC ASSESSMENT OF WOMEN WITH DIFFERENT PHYSICAL ACTIVITY COEFFICIENTS USING BIOIMPEDANCE ANALYSIS

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Reduced physical activity is a key hygienic risk factor associated with unfavorable changes in body composition and metabolic health in women. The present study aimed to assess body composition parameters in women with different physical activity coefficients using bioelectrical impedance analysis (BIA).

The study included female students divided into two groups according to physical activity level. Body composition was assessed by BIA, including body weight, height, body mass index (BMI), total body water, protein content, basal metabolic rate, visceral fat, bone mass, muscle mass, and body fat percentage.

Women in Group 1 (lower physical activity) had a mean body weight of 64.40 ± 5.01 kg and height of 162.00 ± 3.30 cm. Their BMI was 24.48 ± 1.44 kg/m², approaching the upper limit of hygienic norms. Total body water was 46.94 ± 1.61%, protein content 15.38 ± 0.98%, basal metabolic rate 1332.00 ± 50.55 kcal, visceral fat index 5.00 ± 0.79, bone mass 2.56 ± 0.12 kg, muscle mass 39.61 ± 1.87 kg, and body fat percentage 31.60 ± 3.23%, exceeding recommended values.

In Group 2 (higher physical activity), mean body weight was 57.40 ± 3.96 kg, height 165.20 ± 3.27 cm, and BMI 21.72 ± 1.19 kg/m², corresponding to hygienic norms. Total body water increased to 51.02 ± 1.47%, protein content to 17.52 ± 1.25%, basal metabolic rate was 1267.60 ± 44.38 kcal, visceral fat index 3.20 ± 0.96, bone mass 2.39 ± 0.15 kg, muscle mass 39.59 ± 1.54 kg, and body fat percentage 23.48 ± 1.82%. Differences between groups were statistically significant ($p < 0.05$).

In conclusion, lower physical activity is associated with higher body fat percentage, increased BMI, and reduced water–protein balance, while higher physical activity contributes to favorable body composition within hygienic reference ranges. Bioimpedance analysis is an effective, non-invasive tool for hygienic assessment and preventive screening of women's health.

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