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Human Ecology Special Issue No. 15: 63-74 (2007)

Some Differences in Body Composition in Moscow Adolescent Children According to the Level of their Physical Activity: Comparison of Anthropometric and Bioelectrical Impedance Methods of Assessment

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KEYWORDS Body composition, auxology, Moscow adolescents, anthropometry, bioelectrical impedance analysis

ABSTRACT 195 girls and 259 boys of Russian ethnicity from 12 to 17 years old were investigated cross-sectionally in 2005 in different Moscow schools. According to the level of physical activity they were divided into three groups: 1 – those who did not take part into regular physical exercise (44 boys and 50 girls); 2 - those who took part in special sports programs in general education schools (82 boys and 82 girls); 3 – students of special sports schools with high sports ranking (133 boys and 63 girls). The program included anthropometric measurements, evaluation of sexual maturation indices, somatotypes, “functional” traits (blood pressure, pulse rate, hand grip, etc). For the study of body composition the bioelectrical impedance analysis (BIA) was used. The estimates of body components were calculated by anthropometric and BIA methods. For fat components these estimates are highly correlated both in boys and in girls and equal 0.85-0.88 correspondingly. Age changes of BIA measurements and body components were analysed. With multiple regression analysis it was shown that BIA measurements are dependent on a great number of morphological and functional traits, with the most informative sets of traits being selected. The degree of physical activity has a strong effect on body components: the contents of FFM and TBW are significantly increasing, and the FM is decreasing.