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ALIMENTARY OBESITY: ADVANTAGES OF BIOIMPEDANCE ANALYSIS IN ASSESSMENT

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Relevance. In the modern era, alimentary obesity is considered one of the fastest-growing problems among the population. Disruptions in eating culture, increased consumption of high-calorie and fast-food products, and a sharp decrease in physical activity are leading to a wide prevalence of obesity among young people and the working-age population. Alimentary obesity is a leading risk factor for the development of cardiovascular diseases, diabetes mellitus, arterial hypertension, metabolic syndrome, and musculoskeletal disorders, which negatively impacts public health and labor productivity.

Keywords: alimentary obesity, relevance, bioimpedance analysis (BIA), hygienic assessment, body composition.

Introduction. Alimentary obesity occurs as a result of an imbalance between energy intake and expenditure in the body. This condition is characterized by the excessive accumulation of adipose tissue and has a negative impact on the functional state of the body [1,8]. In recent years, there has been an increasing need for a deep analysis of body composition rather than limiting assessments solely to anthropometric indicators [2,6].

In practical healthcare, obesity assessment is often limited to the Body Mass Index (BMI); however, this indicator does not fully reflect the ratio of fat, muscle, and fluid in the body. Therefore, the introduction of accurate and comprehensive hygienic assessment methods for obesity is a pressing issue [4,7].

The bioimpedance analysis (BIA) method is considered promising for evaluating alimentary obesity as it allows for a non-invasive, rapid, and relatively accurate determination of body composition. Utilizing this method expands the possibilities for identifying hidden forms of obesity, developing early preventive measures, and promoting a healthy lifestyle [3,5].

Purpose of the study. To conduct a hygienic assessment of alimentary obesity using the bioimpedance analysis method.

Recommendations. The primary objective of this research is to perform a deep and comprehensive assessment of body composition indicators using BIA, taking into account the impact of dietary habits and lifestyle on the development of alimentary obesity. Within the framework of the study, the degree and type of obesity will be analyzed from a hygienic perspective by determining critical indicators such as body fat percentage, lean body mass, muscle mass, total body water, basal metabolic rate, and visceral fat distribution.

Furthermore, the effectiveness and accuracy of assessing alimentary obesity will be determined by comparing BIA results with BMI and other anthropometric indicators.

Based on the data obtained, the risk of metabolic disorders and chronic non-communicable diseases associated with obesity will be evaluated, and the influence of the hygienic state of the diet and physical activity levels on the formation of obesity will be studied.

Additionally, one of the key goals of this research is to develop hygienic-preventive measures aimed at early detection, prevention, and reduction of alimentary obesity, the implementation of healthy nutrition principles, and providing scientifically grounded recommendations for fostering a healthy lifestyle among the population.

Conclusion. Alimentary obesity develops as a result of improper nutrition and lack of physical activity. The bioimpedance analysis method allows for an accurate assessment of the degree of obesity and visceral fat content by determining body composition. At the same time, this method serves as an effective tool for the early detection of risk factors associated with obesity and the development of scientifically based recommendations for establishing healthy eating habits and lifestyles.

REFERENCES:

1. Brunani A. et al. Body composition assessment using bioelectrical impedance analysis (BIA) in a wide cohort of patients affected with mild to severe obesity // Clinical nutrition. – 2021. – Vol. 40. – No. 6. – pp. 3973-3981.
2. Filatova O. V., Kutseva E. V., Burtseva Y. S. Comparative analysis of different obesity diagnostic methods: anthropometry and body impedance // Ekologiya cheloveka (Human Ecology). – 2018. – Vol. 25. – No. 9. – pp. 48-51.
3. Adedia D. et al. Comparative assessment of anthropometric and bioimpedance methods for determining adiposity // Heliyon. – 2020. – Vol. 6. – No. 12.
4. Bellafronte N. T. et al. Bioelectrical impedance and anthropometric measurements for diagnosis of sarcopenia, sarcopenic obesity and its components in patients with chronic kidney disease // Clinical Nutrition ESPEN. – 2021. – Vol. 46. – pp. S663-S664.
5. Azizova F. L., Bo‘riboyev E. M., Bo‘riboyeva M. M. Tamaki mahsulotlarni ishlab chiqaruvchi korxonada ishchilarning tana vazni indeksini gigiyenik taxlili //Медицинский журнал молодых ученых. – 2024. – №. 12 (12). – С. 272-278.
6. Ortiqov B. B. KALIY ISHLAB CHIQARISH KORXONALARIDA ISHLOVCHI ISHCHILARNING OVQATLANISH TARTIBIGA QO ‘YILADIGAN GIGIYENIK TALABLAR //Медицинский журнал молодых ученых. – 2025. – №. 13 (03). – С. 194-200.
7. Ortiqov B. B., Baxtiyorova G. R., Tugilova S. N. ANALYSIS OF THE MAIN RISK GROUP PRODUCTS IN THE DAILY DIET OF TEKSTIL ENTERPRISES'EMPLOYEES. – 2024.
8. Ermatov N. J. et al. HYGIENIC ANALYSIS OF THE NUTRITIONAL CONDITION OF THE EMPLOYEES OF TEXTILE ENTERPRISE. – 2024.
9. Jumakulovich E. N., Sheraliyevna K. A., Yuldashevich K. D. “VIRGIN TANAGON” BIOLOGIK FAOL QO‘SHIMCHASINING TOKSIKOLOGIK VA GIGIYENIK JIHATDAN XAVFSIZLIK KO‘RSATKICHLARINI BAHOLASH. – 2024.

10. Хайдаров Ш.М., Алимухамедов Д.Ш. (2025). Тез-тез касалланувчи болаларнинг кунлик рационини микронутриентлар билан бойитилгандан кейин таомноманинг самарадорлигини гигиеник баҳолаш. Медицинский журнал молодых ученых, 1(16 (12), 282–286. извлечено от https://journals.tnmu.uz/yotj/article/view/3135