

## THE ROLE OF BIOELECTRICAL-IMPEDANCE-ANALYSIS IN DIAGNOSING OBESITY IN MILITARY TEAMS

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**Research objective:** To study the significance of using the bioelectrical-impedance-analyze method in the diagnosis of overweight among military personnel, as well as in the diagnosis of various degrees of obesity.

**Materials and methods.** bioelectrical-impedance-analysis materials were obtained using the ABC-02 "MEDASS" analyzer for the body composition of 270 servicemen serving in various units of the Ministry of Defense located in the Tashkent Military District, and bioimpedance, analytical, and sanitary-statistical methods were used in the study.

**Abstract.** Bioimpedance analysis (BIA) is a contact method for measuring the electrical conductivity of biological tissues, allowing for the assessment of a wide range of morphological and physiological parameters of the organism. In bioimpedance analysis, active and reactive resistances of the human body or its segments are measured at different frequencies. They are based on the characteristics of the body's body composition, such as fat, cellular and skeletal-muscular mass, water volume, and its distribution in the body. This research method was actively used in sports medicine in the mid-20th century. It allowed the athlete to objectively control the volume of muscle mass, their physical activity, and endurance. In accordance with regular measurements, the load, diet, and daily calories were adjusted based on the person's age and physical condition.

**Results.** The main purpose of conducting this examination during our scientific research is that currently, the medical service uses the traditional "BMI" body mass index to verify different degrees of obesity in military personnel. However, several studies have noted that this formula, based on the ratio of body mass to height, in most cases can lead to poor information and errors.

Body condition analysis according to the "BMI" or "TVI" index was typically performed using a special formula:  $BMI = kg/m^2$

BMI is a simple calculation that uses a person's height and weight to designate a classification. The formula is  $BMI = kg/m^2$ ; kg is a person's weight in kilograms and  $m^2$  is height in metres square.

The BMI formula does not provide complete information about body structure, body water, muscle mass, and the amount and location of body fat, as well as the use of this formula in physically well-developed and overweight military personnel due to muscle mass.

For this reason, considering that the use of research methods such as bioimpedance measurement, which provide more complete information about body structure and body fat content, serves to further improve the quality and reliability of the study, the ABC-02 "MEDASS" bioimpedance analyzer was used in our study to

conduct a more in-depth analysis of the health and physical condition of the body of military personnel.

Based on the results of the bioimpedance study, 16,1% of registered military personnel with overweight had a normal body mass, while they were registered with different degrees of obesity

4,1% of military personnel were found to be overweight, not obese. In addition, according to the results of bioimpedance testing, "hidden obesity" was found in 1,7% of registered female military personnel with normal body weight.

The high body mass of 4,3% of military personnel who participated in bioimpedance studies and were under dispensary supervision with overweight or obesity of varying degrees is explained by a high level of muscle mass and skeletal muscle mass in the body. Specifically, the high muscle mass of the aforementioned military personnel due to their physical activity was characterized by the development of muscle mass as a result of the study.

**Conclusion.** Based on the research findings, the disadvantages and unreliability of using the body mass index (BMI) formula as a measure in determining the degree of obesity in military personnel have been proven, and the high effectiveness and advantages of the bioimpedance test method in assessing and monitoring the degree of obesity in military personnel compared to existing assessment methods can be recognized.

The aforementioned research method allowed for a relatively accurate assessment of the physical development and nutritional status of military personnel during the scientific research, the assessment and analysis of basal metabolism (the main metabolic coefficient), which is the basis of daily energy expenditure, as well as a number of other important indicators.

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