

SPECIFIC FEATURES OF DIAGNOSING METABOLIC SYNDROME

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Abstract. The article examines the medical methods of identifying and diagnosing metabolic syndrome, a disease widespread in modern medicine.

Keywords: metabolic syndrome, morbid obesity, body mass index, peripheral obesity.

Аннотация. В статье рассматриваются медицинские методы выявления и диагностики метаболического синдрома — заболевания, широко распространённого в современной медицине.

Ключевые слова: метаболический синдром, морбидное ожирение, индекс массы тела, периферическое ожирение

At present, most researchers recognize the necessity of calculating the body mass index (BMI)¹. This indicator allows not only the assessment of weight but also provides an objective measure of the patient's overall condition. Morbid obesity, in addition to shortening life expectancy, is associated with disability and is considered a social exclusion. Due to its impact on society, it is classified as a public health problem in many countries, and it is an increasingly growing issue due to poor dietary habits.

Not all obese individuals fall into the same category, because there is a method to determine the type of obesity by taking into account your height and weight using a simple formula. This is very important, as it allows us to know whether we can still intervene in time or extend our life a little further.

Obesity is classified according to the percentage of body fat, that is, if it is over 25% in men and over 33% in women, the individual can be classified as obese.

There is a standard range for men and women; for example, in men, values from 21% to 25% and in women, from 31% to 33% are considered borderline.

The World Health Organization (WHO) proposed classifying the degree of obesity using the body mass index (BMI) as the main criterion:

- Normal weight: 18.5 – 24.9 kg/m²
- Overweight: 25 – 29 kg/m²
- Obesity Class I: 30 – 34 kg/m²
- Obesity Class II: 35 – 39.9 kg/m²
- Obesity Class III: ≥ 40 kg/m²

¹ Sugerman H., Kellum J., Reines H.D. Incisional hernias: greater risk with morbid obesity than steroid dependent patients; low recurrence with prefascial polypropylene mesh // Am. J. Surg. - 1996. - Vol. 171. - №1. - P.80-84.

Later, SEEDO (2007) added the following to the previous classification:

- Obesity Class IV (morbid/extreme obesity): $BMI > 50 \text{ kg/m}^2$

If a person exceeds a BMI of $30\text{--}35 \text{ kg/m}^2$, it indicates that they are suffering from morbid obesity and must be managed carefully, as their life is at risk if early treatment is not provided; without intervention, premature death is likely.

Obesity is classified into types:

- Hyperplastic: This type of obesity is characterized by an increase in the number of fat cells.
- Hypertrophic: This type of obesity is characterized by an increase in the size of adipocytes (fat cells).
- Primary (essential) obesity: This type is defined by its etiology. Primary obesity reflects a general imbalance between food intake and energy expenditure.

Types of morbid obesity:

Not all obese individuals have the same type of obesity. There are several types, and people are categorized into groups depending on the type of obesity they suffer from. Knowing the type of obesity is important for more effective treatment of the condition.

- Android or central/abdominal (apple-shaped) obesity: Some obese individuals have an apple-shaped body because excess fat is mainly located in the face, chest, and abdominal area. This type of obesity is associated with a higher risk of dyslipidemia, diabetes, cardiovascular diseases, and overall mortality.

- Gynoid or peripheral (pear-shaped) obesity: This type occurs when excess fat is predominantly accumulated in the hips and thighs. It primarily affects the lower extremities.

- Uniformly distributed obesity: This type differs from the previous ones because excess fat does not predominate in any particular area of the body.

To determine normal body weight, tables are used that consider height, sex, age, and body type. Additionally, several indices can be applied to determine normal body weight:

1. Broca Index: Used for heights of $155\text{--}170 \text{ cm}$. Normal weight is calculated as: $(\text{Height [cm]} - 100) - 10\%$ (or 15%).

2. Breitman Index: Normal weight is calculated using the formula: $\text{Height [cm]} \times 0.7 - 50 \text{ g}$.

3. Bernhard Index: Ideal body weight is calculated as: $\text{Height [cm]} \times \text{Chest circumference [cm]} / 240$.

4. Davenport Index: Body weight [g] is divided by the square of height [cm]. Values above 3.0 indicate obesity.

5. Oder Index: Normal weight = $\text{Distance from crown to symphysis [cm]} \times 2 - 100$.

6. Noorden Index: Normal weight = $\text{Height [cm]} \times 420 / 1000$.

7. Tatonya Index: Normal weight = $\text{Height} - (100 + \text{Height} \times 100 / 20)$.

In clinical practice, the Broca Index is most commonly used to assess body weight.

According to the criteria developed by the U.S. National Heart, Lung, and Blood Institute (NHLBI):

- Overweight corresponds to $BMI 25\text{--}29.9 \text{ kg/m}^2$

- Obesity corresponds to BMI ≥ 30 kg/m²

Based on BMI values, normal and excessive body weight parameters are described as:

- Underweight: <18.5 kg/m²
- Normal weight: 20–24.9 kg/m²
- Overweight (Class I): 25–29.9 kg/m²
- Obesity (Class II): 30–35.9 kg/m²
- Obesity (Class III): 35–39.9 kg/m²
- Obesity (Class IV / Morbid obesity): BMI > 40 kg/m²

Conclusion: Accurate diagnosis in patients with metabolic syndrome is crucial for selecting the appropriate treatment approach and achieving positive outcomes.

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