

Causes, Symptoms, Diagnosis and Treatment of Obesity in Young People Today

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Annotation: This paper provides information about the causes, symptoms, diagnosis, and treatment methods of adolescent obesity in the modern era. In the modern world, more people die from the consequences of overweight and obesity than from the consequences of underweight (official website of the World Health Organization) [1]. The global obesity epidemic continues to gain momentum, currently affecting more than two billion people - about a quarter of the world's population. In 2017, the Global Burden of Disease Group stated: "Since 1980, the number of people with obesity has doubled in more than 70 countries and is steadily increasing in all remaining countries" [2]. UNICEF reported in 2017 that over the past 15 years, there has been no progress in reducing the number of children and adolescents with overweight and obesity [3]. According to leading experts in this field, if the trend of the 2000s continues, the likelihood of achieving the goal of halving the total number of obese people by 2025 is close to zero [4]. It is safe to say that humanity is currently losing the war on obesity. Russian and international databases were used to search for articles: RSCI, PubMed, ScienceDirect, Scopus and Google Scholar. The search was conducted using the keywords: obesity, globesity, normal-weight obesity, BMI, obesity, obesity epidemic, hidden obesity, BMI. The analysis included original studies and review articles published since 2018 to 2023 in English or Russian. Only full-text versions of articles were used. In 1988, the WHO reported on the problem of obesity as a global phenomenon, and for the first time, the conclusion about the obesity epidemic in the world was voiced [3]. Since then, the term "obesity epidemic or pandemic" has firmly entered into scientific circulation, reports of official bodies and the media. However, it is unclear whether the word "epidemic" defines what we observe in the modern human population. An epidemic begins with an outbreak of a disease, passes a peak, then there is a decline, and eventually it ends, as all susceptible individuals either recover or die. Instead of a sharp outbreak of the "disease" of obesity, we observe a constant and steady increase in the proportion of people with a high body mass index (BMI). Historical evidence from epidemiological studies allows us to conclude that the increase in BMI in the human population has been occurring over the past 300 years. American economist Robert Fogel has studied the relationship between body size and labor productivity since the early 18th century [12]. Using data on the length and weight of residents of the most economically developed countries (Scandinavian countries, France, Great Britain) from 1705 to 1975, Fogel showed that in 1705 the average BMI in these populations was 19 kg/m², which is below the WHO recommended ideal BMI value of 22 kg/m². Over the next three centuries, BMI gradually increased, reflecting the increase in average population values of length and weight, and by 1975 it was 25 kg/m². After reaching the upper limit of normal values, BMI in many developed countries continued to increase and by 2014 in the United States it was 27.8 kg/m². It is suggested that the observed increase in BMI is not an epidemic, but a natural result of biological processes to increase body size in order to protect against hunger and improve efficiency in various conflicts, including military ones. Simultaneously with the continuing weight gain, a slowdown or complete stop in the increase in body length in modern humans is recorded.

Keywords: obesity, overweight, WHO, BMI, hypertension, diet therapy.

Overweight is a condition characterized by excess fat deposits in the body.

Obesity is a complex chronic disease in which excess fat tissue can adversely affect health. Obesity can increase the risk of type 2 diabetes and cardiovascular diseases, have negative consequences for the musculoskeletal system and reproductive function, and increase the risk of developing certain types of cancer. Obesity affects the quality of life, particularly sleep and mobility. The diagnoses of "overweight" and "obesity" are made by measuring a person's weight and height and calculating the body mass index (BMI) using the formula: $\text{weight (kg)}/\text{height}^2 \text{ (m}^2\text{)}$. The body mass index is only an indirect marker of fullness; therefore, additional measurements, such as waist circumference, may be useful for diagnosing obesity.

The BMI criteria for determining obesity in infants, children, and adolescents vary based on age and gender. Overweight and obesity result from an imbalance between energy intake (diet) and expenditure (physical activity). In most cases, obesity is a multifactorial disease caused by environmental factors, psychosocial factors, and genetic predisposition. In some patients, one leading etiological factor of obesity can be identified (medication use, presence of diseases, decreased mobility, medical procedures, monogenic diseases/genetic syndromes). Environmental conditions that increase the likelihood of obesity in individuals or population groups arise from structural factors, such as limited access to healthy foods at affordable prices for the local population, insufficient opportunities for everyday safe and easy physical mobility for all people, and the underdevelopment of the regulatory framework. Additionally, the lack of effective healthcare measures to identify cases of excessive weight gain and fat accumulation in the early stages contributes to the development of obesity.

Types of Obesity

Obesity can be classified based on the distribution of fat deposits in the body:

- **Abdominal (upper or android)** - characteristic of the male population, referred to as "apple-shaped." It is considered the most dangerous type because excess fat accumulates primarily in the visceral organs, which can lead to damage to the cardiovascular system, respiratory system, and gastrointestinal tract.
- **Gynoid (lower)** - characteristic of the female population, referred to as "pear-shaped." In this type, excess fat deposits in the hips and buttocks. It is not as dangerous as abdominal obesity but can lead to lower limb arthrosis, impaired spinal function, and venous insufficiency.
- **Intermediate (mixed)** - fat deposits are evenly distributed throughout the body.

Adolescent obesity can arise from many causes. Currently, this problem is associated with the following factors:

1. **Malnutrition.** Increased consumption of fast food, high-calorie, and low-nutrition products (e.g., snacks). Sugary drinks, chips, and other unhealthy foods are prevalent in the youth diet.
2. **Sedentary lifestyle.** With the development of technology, children and young people spend more time on computers or mobile devices, leading to a lack of physical activity.
3. **Eating habits.** Children and adolescents often have a preference for fast food and may lack healthy eating habits at home.
4. **Stress and mental health.** Young people may develop food dependencies due to stress, depression, or other psychological issues.
5. **Genetic factors.**
 - Overweight – if the BMI for the corresponding age exceeds the median value indicated in the WHO Growth Standards for Children by more than one standard deviation; and
 - Obesity – if the median value indicated in the WHO Growth Standards for Children exceeds by more than two standard deviations.

Prevention and Treatment Methods

There are several prevention and treatment methods for childhood obesity. Here are some recommendations:

Prevention Methods:

1. Healthy Eating.

- ✓ Eat more fruits and vegetables.
- ✓ Focus on nutritious whole grains (e.g., oats, red wheat) and protein.
- ✓ Avoid sweets and fast food.

2. Physical Activity.

- ✓ Engage in physical activity for at least 30 minutes every day (running, dancing, sports, etc.).
- ✓ Participate in sports clubs or fitness programs.

3. Water Intake.

- ✓ Develop the habit of drinking water instead of caffeinated or sugary drinks.
- ✓ Ensure adequate fluid intake throughout the day.

4. Sleep Hygiene.

- ✓ Maintain good sleep hygiene; aim for adequate sleep (usually 8-10 hours for young people).

5. Stress Management.

- ✓ Engage in activities that help reduce stress (meditation, yoga, hobbies).

Treatment Methods:

1. Personalized Planning.

- ✓ Consult with a nutritionist or dietitian to develop an individualized eating plan.

2. Exercise Programs.

- ✓ Follow exercise programs designed by specialists.

3. Psychological Support.

- ✓ If obesity is related to psychological reasons, consult a psychologist or therapist.

4. Medications.

- ✓ Use of medications only on a physician's recommendation, considering potential risks.

5. Group Therapy.

- ✓ Share experiences and increase motivation through participation in group therapy sessions for youth struggling with obesity.

Remember that each person's body is different; therefore, it is advisable to consult a professional before making any changes.

Modern strategies for treating childhood obesity should be long-term and based on a comprehensive approach aimed at changing dietary habits.

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