

**Olena Tolstikova,**

*PhD, Associate Professor of Pediatrics 3 and Neonatology Department  
of Dnipro State Medical University, Dnipro, Ukraine*

***OBESITY IN CHILDREN AND ADOLESCENTS AS A TRANSDISCIPLINARY  
PROBLEM***

***Keywords:*** obesity, children, adolescents, diagnostics, tactics, transdisciplinary problem.

The establishment of criteria for disease or "health" has long been debated by physicians, sociologists, and psychologists. Perceptions of health and disease vary by culture, class, gender, ethnic group, historical time, diagnostic capabilities, economic conditions, and many other factors. Obesity was considered a status symbol reflecting a person's wealth and power in Renaissance culture. In the face of hunger reduction, questions remain, such as whether obesity is a "disease" or simply socially unacceptable behavior reflecting a lack of willpower. Some studies classify obesity as a "risk factor" for chronic diseases. Moreover, in this regard, with limited resources, society must first apply strict criteria for defining a disease, and then determine which diseases are "most worth the investment of time and money." I should be noted, that obesity is not only the basis of chronic diseases such as heart disease, cancer, stroke and diabetes and many others, but it can be a serious debilitating condition in itself. To assess the factors contributing to obesity and associated complications, it is necessary to conduct a comprehensive analysis of the medical history data, physical examination and assessment of laboratory data. In particular, it is necessary to clarify family history, information about previous attempts to lose weight, social factors, lifestyle, medication. It should be

emphasized that obese adolescents rarely outgrow overweight, and obesity itself can lead to the development of a large number of complications that disrupt normal growth, development and health. Obesity in adolescents is associated with hypertension, dyslipidemia and impaired glucose metabolism, all of which cluster within the definition of metabolic syndrome and may increase the risk of certain cancers [1]. In addition to physical consequences, obese adolescents often experience emotional and social complications, including depression, eating disorders and low self-esteem, which are likely in part related to stigma, discrimination and bullying [2]. There is no standard or agreed definition of weight loss success for pediatric populations, or for weight maintenance or recovery. The endocrine community defines a 1.5% decrease in BMI to have a moderate but significant impact on obese adolescents, while at the same time states that at least 7% weight loss is recommended for severely obese adolescents. The weight assessment registry in obese children, as well as an ongoing prospective weight control study, have determined a successful decrease in BMI by at least 5% after 6–12 months of active therapy [3].

An important aspect is the coverage of such a point as weight-related topics discussed with adolescents, which often cause negative reactions from them [2]. And in this case, the medical staff should show them compassion and respect. A significant proportion of children and adolescents have a negative attitude towards the use of the words “fat”, “large” or “obese”, as these terms are believed to contribute to stigmatization. Recently, the terms “weight problem” or “body mass index” have been pointed out to be the most preferred terms for use by a physician [4]. In addition, it is recommended to refer to children and adolescents as “obese people” rather than “obese patients”. This is an important distinction because adults, children, and adolescents alike often do not want to be identified for illness. Disease is defined as "deviations from the normal or healthy structure or function of a part of an organ or body system caused by an underlying etiology, manifesting characteristic symptoms and signs and leading to pathological

consequences affecting health, feelings or functioning." Thus, diseases are characterized by maladaptive changes in the "normal" structure and function of the body, which are caused by the main pathophysiological mechanisms and lead to the appearance of symptoms and signs that affect health. In this classical context, the position is indicated that obesity is a multitasking chronic disease that is recognized throughout life as a result of a long-term positive energy balance with the development of excess body fat, which over time leads to structural, physiological and functional disorders [1]. Obesity increases the risk of developing other chronic diseases and is associated with premature mortality. As with other chronic diseases, obesity is characterized by multiple phenotypes, clinical manifestations and responses to treatment [2]. Multiple behavioral interventions may be effective for some obese adolescents. Intensive lifestyle change programs for weight loss with possible long-term maintenance of weight loss, constant communication between family and various doctors. If necessary, the physician should rely on an interdisciplinary team of experts, which includes licensed nutritionists, physiologists, physical education instructors, psychologists and other professionals. Multiple behavioral interventions are the backbone of all adolescent treatment and should be an integral part of obesity management. Changes in food intake, both quantity and quality, are usually included in behavioral interventions. The aim of these efforts is to reduce energy consumption while improving the nutritional quality of the foods consumed. The most commonly used approach is the Traffic Light Diet, which is family-friendly. Its essence lies in the fact that food is classified according to the colors of the traffic light. Foods in the green group can be eaten "always" as they are low in calories and nutritious and include fruits and vegetables. Yellow foods, or "food you can eat occasionally," are nutrient-dense but high in calories. Components in the red group, or "occasional foods," include ultra-processed foods such as desserts, sugar-sweetened beverages, and fried foods. It was found that in the groups of children and adolescents who used the "Traffic Light" diet for 6 months to 2 years, there was a statistically significant decrease in BMI within the range of 0.18 – 2.6 [6].

Importantly, from a safety perspective, structured interventions for childhood obesity are associated with a reduction in the prevalence, risk and symptoms of eating disorders and appear to lead to a reduction in depression and anxiety. Other interventions have focused on changing the distribution of macronutrients in the diet, including "low fat" or "low carbohydrate". Similar to the results observed in adults, long-term studies over 12 months show that weight loss can be achieved in adolescents regardless of macronutrient distribution in the reduced calorie diet. Short-term studies (8-12 weeks) have suggested that a very low-calorie diet, usually about 800 kcal per day, can safely lead to rapid weight loss and potentially reverse newly-onset type 2 diabetes in adolescents. However, the study was small ( $n = 8$ ) and did not have a control group. Thus, further research in this direction is required [5]. The change in energy expenditure is aimed at combating a sedentary lifestyle and increasing physical activity from moderate to vigorous. However, a systematic review and meta-analysis found that dietary adjustments or a combination of exercise and diet resulted in improved metabolic profiles and weight loss in young adults without significant differences in weight loss between the two. Regardless, increased physical activity improved cardiometabolic outcomes and predicted sustained weight change 10 years after engaging in weight loss activities in adolescents. The recommended physical activity should include 30 minutes of moderate-intensity exercise per day, 5 days a week, or 20 minutes of vigorous physical activity, 3 days a week. Physical activity should be increased by limiting sedentary time to less than 2 hours a day. Behavioral strategies are often based on cognitive behavioral therapy, helping participants change their diet, physical activity, and sleep patterns through the development of self-control skills, goal setting, and stimulus control. These interventions help participants manage negative emotional states and prevent negative thoughts (such as certain eating habits) from arising through cognitive reframing and distraction techniques. Family Behavioral Weight Loss Treatment is a multi-component intervention aimed at parents and children and the most widely studied behavioral intervention for young people. Family Behavioral Weight Loss Treatment is effective in improving a

child's weight in the short and long term. However, behavioral interventions to date appear to be more effective in children than in adolescents. However, both parental and family weight loss treatments are a more effective treatment for adolescents. Multicomponent, intensive lifestyle change programs are the backbone of any adolescent obesity treatment and can be moderately effective in reducing excess weight while maintaining long-term weight loss. In particular, the change in BMI indicator ranges from -0.06 to 0.13 after treatment in adolescents, which corresponds to a change in body weight from -2.7% to 1.9%. These programs reduce the risk and prevalence of eating disorders and reduce the frequency of symptoms of depression and anxiety. While even modest reductions in BMI or body fat percentage can potentially improve markers of cardiometabolic risk, efforts are needed to improve the effectiveness of multicomponent, behavioral weight management interventions in adolescents.

**Conclusions.** Thus, obesity in children and adolescents is one of the most serious public health problems of our time. Therapeutic management of adolescent and childhood obesity deserves the same resources, significant scientific research, and access to quality, lifelong care for patients with other chronic conditions. Dedicated resources are urgently needed to develop effective and less invasive treatments and effective adjuvants (eg, pharmacotherapy and lifestyle programs). In addition, there are not enough comprehensive centers offering specialized pediatric obesity treatment, obesity medicine specialists. Treatment for obesity in adolescents is likely to be required, inter alia, in primary care, where doctors offer diagnostic services, identify and treat complications of obesity, and, where appropriate, prescribe or guide pharmacological or surgical options. However, trained managers and professionals who can deliver behavioral interventions, such as registered dietitians and psychologists, should be part of the pediatric primary health care team's medical team to implement behavioral interventions and help with parenting issues, eating disorders, prevention of smoking and drug use, and adherence to treatment. Taken together, this underlines the urgent need for more research and education

in obesity medicine for all clinicians and the allocation of resources for behavioral therapists to implement multicomponent adolescent obesity interventions. As more and more evidence points to the harmful effects of excess obesity in adolescence and beyond, it is our ethical responsibility to ensure lifelong access to quality, evidence-based treatment for obesity. Prevention and treatment of obesity on a global scale is not possible only in a clinical setting. Changes are needed in social and cultural norms in different sectors: government, education, health care, marketing, food and beverage production and in different settings: schools, workplaces and society.

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**Tetiana Uvarova,**

*Ph.D. Candidate of Sciences (Study of Art), Professor of the department of arts and humanitarian studies, International Humanitarian University, Odessa, Ukraine*

### ***KNOWLEDGE, INFORMATION, READING IN TECHNOLOGICAL CULTURE***

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An important role in the late XX and early XXI centuries began to play technological culture. Its existence as a special «niche» of cultural space is a fact that cannot be ignored. In our era, when technology, engineering and science play such an important role in the life of mankind, it is scientific knowledge that is the determining factor of progress. Knowledge and the dominance of the intellect are the new features of the new millennium.

But information and knowledge are not the same thing. «Anyone who has taken examinations in his life has been confronted with the fact that information and knowledge are different things, and has felt how agonizing the process of turning one into the other can be. It is important to note that this process is not a mechanical one. Even in a case as simple as textbook training, it must involve not only memorization, but also