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OBESITY IN CHILDREN – THEORETICAL GROUND

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Abstract

Aim. The aim of this study was to draw attention to obesity in children and highlight the elements of obesity in children based on scientific studies.

Methods. We searched the following computerized databases: PubMed, Web of Knowledge, Google Scholar, and the websites of the World Health Organization (WHO).

Results. All studies suggest that in recent years, there has been an alarming increase in the incidence and prevalence of obesity in children.

Conclusion. The appearance of obesity involves multiple interactions between genetic, social, behavioral, metabolic, cellular, and molecular factors. Childhood obesity involves an increased risk of becoming an obese adult, associating with comorbidities such as diabetes, cardiovascular diseases, and even different forms of cancer. It is not news that among people who suffer from obesity and want to lose weight, sports should not be neglected. Sport is a healthy and extremely effective way to combat obesity.

Keywords: obesity, children, factors of obesity, risks of obesity

Introduction

Obesity is today a real scourge recognized and classified by the World Health Organization (WHO) as a "world epidemic". The effects generated by modern life, due to urbanization and prohibitions that limit children's need for movement, the lack of a logical motivation regarding physical activity in clubs and schools, and the state of children's health constitute so many problems that, to be solved, involve intense and constant efforts in the field scientific research. (Hangu, S.Ș., 2016, Neumann (Constantinescu), O.V., 2018)

Obesity prevention is a global public health priority, as overweight and obesity have an important impact on both short-term and long-term health and well-being. Internationally, the prevalence of childhood obesity continues to increase, although there is evidence that a slowdown in this increase or a plateau has been observed in most European countries, the United States and Australia (Olds T, Maher C, Zumin S, et al , (2011) Scientific evidence supports that once obesity is established, it is difficult to return to a normal weight through lifestyle interventions.

In order to combat and prevent overweight and obesity from school, there should be a program in every school, through which students, parents, and teachers are informed about the risks that this "disease" entails. A major cause of the appearance of excess weight from such a young age is the lack of exercise, which is associated with an unhealthy diet.

Obesity is the most frequent child nutrition disorder and represents a major public health problem in many countries. The phenomenon is in a worrying progression, with extraordinary medical, social and economic implications. Currently, there is an epidemic trend of increasing the frequency of obesity and overweight, which have come to affect approximately 20-25% of children and 45-45% of adolescents worldwide. (WHO Global Infobase, http://apps.who.int/infobase/Comarisons.aspx.)

Childhood obesity is an important public health problem that leads to increased morbidity and mortality, and has long-term economic and social implications. In the last quarter of a century, the obesity rate in childhood and adolescence has almost tripled: 14% of children aged 2-5 and 19% of those aged 6-11 are obese. (Grier, S.A., Mensinger, J., Huang, S.H., Kumanyika, S.K. and Stettler, N., 2007). Obesity is a complex, multifactorial condition and one of the most common nutritional diseases in the world.

According to the 2011 WHO report, it is considered the disease of the 21st century (Ogden C, Connor Gorber S, Rivera Dommarco J, Carrol M, Shields M, Flegal K., 2009). In the European Union, the number of overweight children tends to increase by 1.3 million/year, annually over 300,000 become obese. Romania ranks third in childhood obesity: 40% of children are overweight, and their number is 18% higher than 10 years ago.

Most specialists in the field believe that this global increase in obesity is due to an increase in energy intake and a decrease in physical activity (Livingstone M.B., 2001; Grier, S.A., Mensinger, J., et all, 2007). As Allan, K., Burridge, K., (2006) show, in recent years there has been an alarming increase in the incidence and prevalence of obesity in children and young people.

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Until now, few studies have been conducted in Romania regarding child obesity:

- study conducted in the west of the country in 1980: obesity prevalence of 14.7% in children aged between 3 months and 16 years;
- the study IOMC Bucharest 1993-2002: overweight prevalence of 6.4% in girls 0-4 years and 5.5% in boys of the same age;
- the Health Behavior in School-aged Children (HBSC) study in 2005-2006 in children 11-15 years old: prevalence of overweight in girls of 14.6% and in boys of 8.7% (Coşoveanu, C.S., 2010);
- the study carried out in the northeast of Romania: in children 7-11 years old, the prevalence of overweight was 18.5% in boys and 15.9% in girls, and obesity was 7.7% in boys, respectively 6.8% in girls (Mocanu V, Găleşanu C, Mândăşescu S, Haliga R, Costan A.R, Bădescu M., 2011)

Since childhood obesity has become a problem, including in our country, the attention of many specialists in the field has been focused on this aspect. Among the most common methods of fighting extra pounds, there are numerous approaches, of which the most effective remains the motor factor.

The global increase in the prevalence of obesity is due to the increase in energy intake (especially foods with increased caloric density, rich in fats, sugars) and the decrease in physical activity (Livingstone M.B., 2001

The risk of children who developed obesity in the first years of life becoming obese adults is 80% for those with both obese parents and 40% for children with only one obese parent, and 20% of obese infants become obese children and 40% of obese children become obese youth. (Coşoveanu, C.S., 2010)

Methods

Factors determining the appearance of obesity

In recent years, there has been an alarming increase in the incidence and prevalence of obesity in children and young people, which is becoming, globally, an important public health problem Allan, K., Burridge, K., (2006). Obesity is a heterogeneous disease with multifactorial pathogenesis Brewis, A., A., Wutich, A., Falletta-Cowden, A., Rodriguez-Soto, I., (2011). The main determinants of obesity overlap with the model of health determinants defined by Dahlgren and Whitehead (1991) cited by Charleswell, C., (2013) and can be grouped into individual factors (genetic factors, age, sex, behavioral factors, lifestyle), social factors (family, social contacts, living, neighborhood and work conditions, work colleagues, etc.) and socio-economic, cultural, and environmental factors.

The biopsychosocial model of the appearance and maintenance of overweight and obesity in children and young people by Lehrke and Laessle, cited by Brewis, A., A., Wutich, A., Falletta-Cowden, A., Rodriguez-Soto, I., (2011) , classifies the determining factors of obesity in children into genetic factors (increased number of fat cells, reduced energy consumption), sociocultural factors (increased, excess availability of foods with high energy density, opportunities to spend free time that does not require increased physical activity) and psychosocial factors (eating habits acquired in the family, stress, emotional status).

Genetic factors

Along with eating habits inherited from parents, genetic factors also influence body weight (Sheehan, K., B., 2014). Thomas, S., (2008) believes that "Obesity of one or both parents probably influences the obesity risk of their offspring, due to genetic transmission or family environmental factors"

The idea that "obesity runs in families" has been supported by numerous cross-sectional and longitudinal studies (Vartanian, L.,R., Novak, S., A., 20 , Wilson, N., Blackhurst, A., E., 1999, Winsome, B., S., 2011). The genetic influence on the occurrence of obesity in children is estimated to be between 50 and 90%.

Studies in families, twins and adopted children have indicated that genetic inheritance is responsible for 25-40% of the differences in obesity between individuals. Brewis, A., A., Wutich, A., Falletta-Cowden, A., Rodriguez-Soto, I., (2011)

Social and cultural factors

The social and cultural environment in which the child lives, represented by home, school, and community, exerts a major influence on eating habits and physical activity (Mehrdad, N., Hossein Abbasi, N., Nikbakht Nasrabadi, A., 2015). It stands out the abundance of advertisements that promote foods rich in sugar, fat and salt to the detriment of fruits and vegetables, the broadcasting of these advertisements, which often use extremely persuasive techniques, during the peak hours for children (Puhl, R., Peterson, J., L., Leudicke, J., 2012). Studies have shown that the association between low socioeconomic status and obese parents is an important determinant of childhood obesity (Merrill, E., Grassley, J., 2008).

Children and young people who come from disadvantaged backgrounds or from immigrant families have an increased risk of developing obesity (Puhl R., M., Luedicke, J., Heuer, C., 2011). The most important reason would be the difficult access, for financial reasons or due to the lack of proper information, to a healthy diet or to certain facilities such as fields or gyms.

Physical activity

In recent years, there has been a dramatic decrease in the physical activity of children and adolescents, particularly due to preferences for sedentary activities involving the use of computers and television (MacCann, C., Roberts, R., D., 2013).

Children's normal physical activity is also restricted by the insufficient number of specially designed playgrounds, green spaces, and bike paths (Heyes, C., J., 2006). To these are added elements regarding the safety of children during physical activities: heavy car traffic, traffic signs that are missing or unclear, the bad condition of bike paths or walking roads. An important role is played by the length of breaks between classes as well as the possibility of spending this time in nature or on a playground. Access to gyms and sports fields or swimming pools is difficult not only because of their small number but also because of the high prices.

Habits and eating habits

In children, the attitude and behavior toward food is formed most of the time by imitating the example of their parents, so that, later, they become habits. The child-parent relationship is very important because parents greatly influence their children's food preferences and lifestyle.

Among the unhealthy eating habits, acquired in the family, are: not respecting meal times, eating in a hurry, watching TV, while reading, and small but high-calorie snacks between meals. Also, "the ingestion of snacks with high energy value, rich in carbohydrates and fats but with a low content of proteins, vitamins and minerals, lead to the appearance of obesity" (Guthman, J., 2011). Added to this is the fact that, often, children eat without feeling hungry, but only because their parents want them to.

The prevalence of problems related to an unhealthy diet has an upward trend, in the absence of profound changes in the attitude and behavior of adults. Children acquire culinary preferences within the organizational and family culture in which they develop, usually through observation and imitation. Health education of families with young children regarding nutrition can have a positive impact on the risk of obesity in children. If genetic and social factors cannot be modified to prevent the appearance of the risk of obesity in children, focusing attention on behavioral changes, especially on improving eating habits, will increase the probability of a healthy adult population (Ilies, A.I., Domnariu, H. P., Domnariu, C.D., 2012).

Stress and emotional sensitivity

Eating food without feeling hungry is often a compensatory factor for some negative experiences and feelings: stress, sadness, fear, anger, guilt and disappointment. Laessle RG, Tuschl RJ, Waadt S, Pirke KM, (1989), with reference to Bakhoff's research (1987), describes that 38% of obese children eat out of boredom, 22% out of loneliness and 11% out of a depressive state (Brewis, A., A., Wutich, A., Falletta-Cowden, A., Rodriguez-Soto, I., 2011). Also, the lack of results after weight loss diets is frustrating and can cause hyperphagia.

Emotional eating refers to the consumption of food for emotional regulation. Eating the tasty foods we like, generally sweets and high-calorie foods, may temporarily improve our well-being, but in the long term this aspect is widely recognized as the source of today's obesity epidemic (https://choiceconsulting.ro/mancatul-emotional/)

The most common situational factors are hunger and stress. When people are under stress, be it school, work or the relationship with their life partner, they tend to associate the feeling of stress with hunger. These feelings of hunger are influenced by both normal hunger and hedonic hunger (urges, feelings and thoughts about food). The determined psychological factors are related to personality, motivation and self-regulation (https://choiceconsulting.ro/mancatul-emotional/). The most important are:

- Food restriction involves the restriction and monitoring of a person's diet. The people concerned are constantly thinking about food, which is why the chances of them eating emotionally when they are stressed or unhappy are much higher.
- Impulsivity is the tendency to act without thinking or considering the consequences. People with an impulsive character do not consider the unhealthy consequences of emotional food consumption.
- Reward sensitivity is the degree to which a person is receptive to the rewards of a behavior. For example, some people are more sensitive to (appreciate more) the properties of emotional eating in the short term-improving well-being.
- Cognitive reappraisal is the way in which one cognitively evaluates a situation generated by emotions. For example, a person who habitually eats emotionally is less likely to use cognitive reappraisal. For this reason, if she fails a job interview test, she will not be able to view this experience as a valuable lesson or a challenge, but will classify it as a humiliating failure (https://choiceconsulting.ro/mancatul-emotional/).

Types of obesity

Obesity is classically classified into type 1 and type 2 obesity.

Type 1 obesity is not caused by a disease, in most cases the reason for gaining weight is the consumption of excess food and lack of exercise.

People with type 2 obesity represent less than 1% of all obese people. This type is caused by a condition: Cushing's syndrome, hypothyroidism, polycystic ovaries, and pancreatic tumors are some of the endocrine conditions that cause type 2 obesity.

Type 1 obesity is treated like any weight gain, i.e. by stimulating diet and exercise. However, in the case of type 2 obesity, the first step is to diagnose and treat the condition, because the pounds will naturally disappear during and after treatment.

The latest research in the field has identified six types of obesity that depend on various specific factors. Scientists also offer solutions to combat each type, separately (https://chirurgie-drfodor.ro/articole-blog-informatii/6-tipuri-ale-obezitatii-si-modalitatile-de-combatere-acestora).

Dietary obesity

It is no longer news that overeating is the main cause of obesity worldwide. If fat accumulates, especially in the upper part of the body, this fact emphasizes the fact that too much sugar and too large amounts of food are consumed.

It may seem that, although we do not eat a lot of food, we gain weight, or it happens that other people who consume the same amount of food do not suffer from excess weight, but we do. The cause may be an incorrect calculation of the amount of food we consume. The solution is based on three simple rules:

• It is recommended to drink 500 ml of water before meals, this has the effect of reducing food consumption.

• It is recommended to avoid the consumption of sugar and any type of sweets.

• A minimum of 30 minutes of physical exercise is recommended every day (https://chirurgie-drfodor.ro/articole-blog-informatii/6-tipuri-ale-obezitatii-si-modalitatile-de-combatere-acestora).

Nervous stomach obesity

Causes of excess weight in the stomach area include stress, depression or prolonged anxiety. People suffering from such obesity, as a rule, consume too many sweets to calm down. Eliminating stress and anxiety could lead to a decrease in the need to consume sweets, thus eliminating excess weight.

Obesity caused by gluten

Obesity caused by gluten is found especially among women, especially during adolescence, during menopause or whenever hormonal imbalance manifests itself in the body. In such cases, it is recommended to exercise and avoid smoking and alcohol consumption. Avoiding a sedentary lifestyle and performing physical exercises with weights are recommended (https://chirurgie-drfodor.ro/articole-blog-informatii/6-tipuri-ale-obezitatii-si-modalitatile-de-combatere-acestora).

Metabolic obesity

In case of metabolic disorder, fat will accumulate in the abdomen area, and breathing will become more and more difficult. First of all, it is essential to stop drinking alcohol. The next necessary steps are physical movement and a suitable diet in which more products of vegetable origin prevail and a reduced number of products of animal origin.

Blood obesity

It is considered that obesity of the blood vessels is a condition that is inherited through genetics and also occurs as a result of poor blood circulation. Such obesity is more common during pregnancy and among people who have swollen feet. The indicated solution, in the case of this condition, is practicing physical exercises, walking and climbing stairs (https://chirurgie-drfodor.ro/articole-blog-informatii/6-tipuri-ale-obezitatii-si-modalitatile-de-combatere-acestora).

Obesity caused by sedentary lifestyle

Obesity caused by lack of activity affects parts of the body that are very active at a given time. This is more common in the case of people who once used to do rigorous physical exercises but who, for one reason or another, gave up. If a person suffers from this type of obesity, it is recommended to avoid high-calorie foods for a longer period. Taking meals on time and avoiding long periods of hunger are also indicated. In order not to consume too large amounts of food in the evening, it is advisable to eat more and smaller meals every day (https://chirurgie-drfodor.ro/articole-blog-informatii/6-tipuri-ale-obezitatii-si-modalitatile-de-combatere-acestora).

Results

Risks of obesity

Apart from esthetic inconveniences, many major diseases are related to obesity. Mainly on the list are cardiovascular diseases. Arterial hypertension weakens the heart, increasing the risk of a pre-infarction, arteriosclerosis and stroke, leading to kidney failure and eye diseases. A simple test can save you a lot of trouble. By exercising regularly, avoiding salt and eating healthy, you can avoid all these problems. Obese people have a higher level of cholesterol, which leads to hypercholesterolemia. As cholesterol levels increase, so does the risk of coronary heart disease.

Other diseases caused by obesity include gall bladder diseases, low sexual activity, sleep disorders, depression and certain types of cancer. Due to the excessive weight carried on the legs, varicose veins can also be caused, the weakening of the knee joints, hips and ankles, eventually leading to arthrosis. Following a study, it was found that people who have a weight higher than normal suffer from infertility more often, or they may have a spontaneous abortion, or it is difficult for them to carry a pregnancy to term (https://www.perfecte.ro/familie/care-sunt-riscurile-obezitatii-infantile-si-cum-o-tratezi.html).

Effects of being overweight among children:

- the appearance of type 2 diabetes through insulin resistance
- problems of the cardiovascular system, including an increase in bad cholesterol and blood pressure
- sleep apnea - occurs when during sleep breathing becomes heavy or even stops for a few seconds, followed by loud snoring and insomnia
- hepatic steatosis - or fatty liver disease, consists in the deposition of fat on the liver cells
- asthma - although opinions are divided, many specialists link one of the reasons for the appearance of asthma to childhood obesity
- pancreatitis - starts with abdominal pain, dizziness, nausea and fever
- cholecystitis - the gallbladder, located near the liver, becomes inflamed and thus the digestion of food becomes difficult.

- high risk of weakening the bone structure (https://www.perfecte.ro/familie/care-sunt-riscurile-obezitatii-infantile-si-cum-o-tratezi.html)

Means of combating obesity in children

Studies have shown that only diet or physical exercises are not enough to fight obesity.

The EU Action Plan on Childhood Obesity 2014-2020 sets out some priorities in the field and monitors progress. In 2007, the European Commission adopted an important document presenting a strategy for Europe in the field of nutrition and health problems associated with overweight and obesity. The strategy that inform, engage the food industry and promote research on nutrition and physical activity (https://www.perfecte.ro/familie/care-sunt-riscurile-obezitatii-infantile-si-cum-o-tratezi.html)

The main objective is to encourage a healthy diet and an active lifestyle for all and to stop the increase in overweight and obese people by 2020. One sure way is to be physically active (Constantinescu O. V., 2024). The strategy considers the needs of different target groups, including those with lower incomes and fewer opportunities (https://europa.eu/youth/eu/article/65/32142_ro, https://ec.europa.eu/health//sites/health/files/nutrition_physical_activity/docs/childhoodobesity_actionplan_2014_2020_en.pdf

Obesity is the result of an imbalance between the energy accumulated from food and drinks, and the energy consumed through metabolism and physical activity. In children, part of the energy is consumed during the growth and development process. This energy imbalance is largely influenced by food choices and culinary habits, which in turn influence genetic and metabolic factors that ultimately determine body weight (Teslariu, O., Drochioi, S., Anton-Păduraru, D.T., 2015).

Conclusions

The appearance of obesity involves multiple interactions between genetic, social, behavioral, metabolic, cellular and molecular factors, which result in changes in the energy balance (Popa, I., Brega, D., Alexa, A., 2001).

Childhood obesity involves an increased risk of becoming an obese adult, associating comorbidities such as diabetes, cardiovascular diseases and even different forms of cancer. For this reason, the causes of this expanding process must be understood, in order to try to limit its evolution.

The global increase in the prevalence of obesity is due, on the one hand, to the increase in energy intake, especially from foods with increased caloric density, rich in fats and sugars, and on the other hand, to the decrease in physical activity.

It is not news that among people who suffer from obesity and want to lose weight, sports should not be neglected. Sport is a healthy and extremely effective way to combat obesity.

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