

Nutribén®

Childhood obesity



What is obesity?

Obesity is a chronic disease that consists of an increase in fat with respect to total body mass, whose origin has a multifactorial influence (genetic influence associated with environmental risk factors such as diet, sedentarism, and socioeconomic, psychosocial, behavioral factors, etc.).

An increased energy intake and reduced energy expenditure contribute fundamentally to its appearance in the vast majority of cases. In a small percentage there are cases of intrinsic obesity associated with other diseases such as endocrinopathies (hypothyroidism,

hypercortisolism, growth hormone alteration, etc.), dysmorphic syndromes, as well as monogenic pathologies (due to mutations of certain genes), or appears by the action of certain drugs (corticoids, antidepressants, anti-epileptics, etc.).

In children, their diagnosis is established using body mass index (BMI: weight

(Kg) / size² (meters)) adjusted for age and sex, thus assessing the data in percentiles and establishing that there is overweight when the child is between the 75th and 90th percentiles.

Above the 90th percentile, obesity grade I is determined to exist and if the 97th percentile is exceeded, obesity grades II and III are diagnosed.

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The prevalence of obesity will be the precursor of the maintenance of this pathology in adulthood, increasing during its evolution the risk of suffering other diseases and complications associated with an increasingly premature manner.

A greater incidence of this pathology is described in children belonging to population groups with socioeconomic difficulties, who eat basically in an unhealthy way. There is a discrete elevation of cases in the female sex, especially before puberty.

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NUMBER OF OVERWEIGHT OR OBESE BABIES AND YOUNG CHILDREN IN THE WORLD (0 TO 5 YEARS OLD)



Year 1990

32M



Year 2013

42M



Year 2025

70M

Symptoms and complications

In cases of obesity associated with poor nutrition and sedentary lifestyles, children generally maintain a normal or accelerated bone size and maturation. However, in cases of obesity associated with other pathologies or of endogenous origin, children often present alterations in the development of height and bone maturation appropriate to their age.

The fat can be distributed in a truncated form, favoring the appearance of pseudogynecomastia (accumulation of fat in the breasts) and the accumulation of fat in the suprapubic region. Occasionally, skin striae may be observed as well as alterations in skin pigmentation (acanthosis nigricans) located in the neck, armpits, back of fingers, etc... In addition, alterations of the locomotor apparatus are frequent, such as deviations of the curvature of the legs, for example.

In adolescence, some girls have delayed puberty and in other cases, obesity has been associated with polycystic ovary syndrome. Psychological disorders are also common in overweight or obese children: they suffer from depression, eating disorders, antisocial attitudes, and isolation, etc.

The distribution of fat at the abdominal level is associated, among other things, with an increase in hepatic fat, with the appearance of hepatic steatosis, alterations in the function of the liver with an increase in hepatic enzymes, among other complications.

Obese patients often suffer from respiratory symptoms such as sleep apnea, respiratory infections, dyspnea or fatigue sensation with effort, etc.

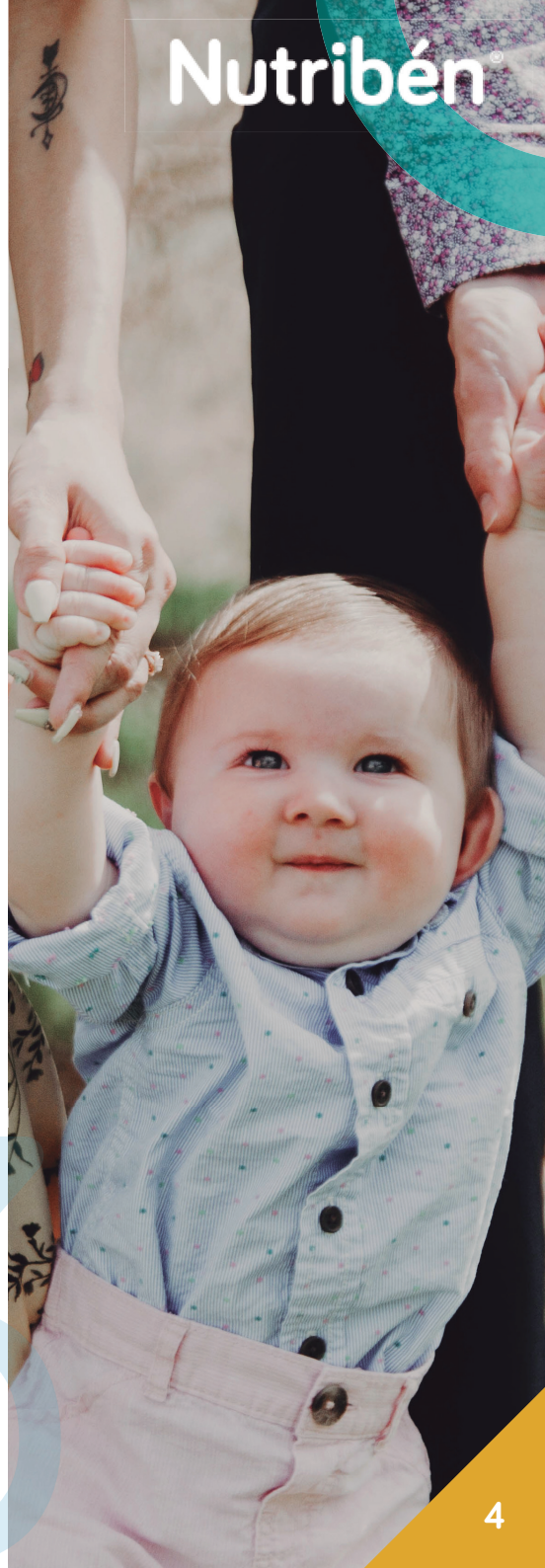
Obesity is also directly associated with other diseases that increase cardiovascular risk. Thus, it is common to find in children with sustained obesity, alterations of lipid metabolism with an increase in the so-called "bad cholesterol" or LDL and/or triglycerides, and decrease in "good cholesterol" or HDL. Obesity is also clearly related to an increased risk of developing type 2 diabetes mellitus or high blood pressure. All this will determine that the child may suffer from the so-called metabolic syndrome.

Diagnostic

Pediatricians establish the diagnosis of obesity using the body mass index (BMI) associated with percentiles and reference curves according to the reference population to which the patient belongs. In addition, they use anthropometric measurements such as abdominal perimeter, hip perimeter, fold measurement, etc.

Before, within the medical history collected by the doctor, the doctor asks the parents or caregivers of the child about the family history of the patient (if they suffer from obesity, diabetes, hypertension, hypercholesterolemia, etc.), what was the weight and height at birth of the child and what has been its evolution, what type of breastfeeding has had, what eating habits the child and the family maintain, what is the level of physical activity performed, how has been their psychomotor development, and so on.

During the physical examination, in addition to assessing the child's height and weight in order to establish the BMI, and carrying out anthropometric measurements of perimeters, folds, etc., a blood pressure measurement and a detailed examination are also carried out, paying special attention to possible alterations in the locomotor apparatus, inspecting how body fat is distributed, whether there are signs of endocrinopathy, or what is the pubertal development according to the child's age. In addition, radiographic tests are sometimes required to assess bone maturation.



When necessary, the pediatrician may request a blood test to establish if there are data that help to establish the diagnosis of metabolic syndrome or to detect some hormonal alterations, for example. This indicates the determination of a hemogram, basal blood glucose, biochemistry with lipid profile, transaminases, iron, calcium, phosphorus, PTH (parathormone), thyroid hormones, and so on.

Sometimes it is necessary to refer the patient from the first moment to hospital care when there is not an adequate evolution in the control of obesity, there is morbid obesity or there is the suspicion of a diagnosis of major complications. Thus, if necessary and in certain specialized services, another series of tests can be employed for a more precise estimation of body fat:

Hydrodensitometry
Air displacement plethysmography (Bod-Pod)
Dual- energy X-ray absorptiometry (DEXA)
Impedanciometry
Other more common tests such as magnetic resonance imaging (MRI)
Computerized axial tomography (CT)
In addition, the analytical tests can be extended, being habitual the determination of oral glucose overload, insulinemia, GH and TRH test, circadian rhythm of cortisol, ACTH, etc.

Other diagnostic determinations that are sometimes used are calorimetry to assess the child's energy expenditure, the calculation of the insulin/glucose index or the performance of a genetic study.



Treatment

Within the treatment, there are some basic general pillars that doctors try to establish in the family and school environment of the child for their diet and lifestyle:

- Maintain a healthy and balanced diet for the whole family, modifying bad habits and maintaining good nutrition permanently. This requires persistent commitment from the child's parents or caregivers, as well as school canteens.
- Plan a varied diet within the recommended foods and tastes of the child, according to their age. Likewise, stable meal times should be established, with a scheduled intake of 4 or 5 meals a day, avoiding eating between meals.
- Avoid eating while the child is watching TV or doing another activity. The child should always be seated while eating.
- Establish physical exercise patterns of greater or lesser intensity on a daily basis, avoiding sedentarism. Avoid watching TV or using other electronic devices for more than one hour a day.

Real objectives should be set in accordance with the guidelines given by doctors, achieving a progressive and sustained loss of weight, keeping it as the child grows, thus avoiding sudden and fluctuating gains and losses. This maintenance of weight, in healthy ranges according to the growth of the child, is something fundamental in the long-term control of obesity, for which it is necessary to promote from all areas, the child's full adherence to treatment and the maximum collaboration of his family.



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In the maintenance period, more general feeding guidelines are determined, adjusted to his/her energy requirements.

In general, among the foods that are recommended to be avoided in the diet of the overweight or obese child, are all those that provide many calories and little volume, for example:

Chocolate
Butter or margarine
Cream
Sausages
Fried
Breaded or battered foods
Mayonnaise
Olives
Nuts
Industrial pastries
Packaged juices
Ice creams or sweets, etc.
Virgin olive oil can only be used in small quantities for salads or for cooking (avoiding frying).



On the contrary, the recommended foods are preferably natural, fresh or frozen, always avoiding precooked foods. They should be eaten cooked, grilled or baked. Within this food group are recommended:

- Fruits with a minimum of 3 pieces per day, without being replaced by juices.
- Vegetables of all kinds, raw or cooked. Those of leaf can be eaten without limitation.
- The most recommended meat is poultry, without skin, avoiding in general those meats in which it is difficult to eliminate visible fat, such as pork.
- The fish should be eaten at least 2 or 3 times a week, being suitable any type and advisable to accompany it with garnishes based on vegetables.
- Eggs no more than 2 or 3 egg yolks per week. They can be prepared cooked, poached, water-soaked or in a tortilla with little oil.
- Semi-skimmed milk and yogurt, not exceeding half a liter per day.
- Legumes of all kinds, a minimum of 3 times a week, accompanied by vegetables and never by sausage.
- Prepared pasta without fat 1 or 2 times a week.
- Boiled or baked potatoes, once a week in moderate quantity.
- Cooked rice to which you can add fat-free tomato sauce, recommended at most, once a week.
- Bread in small amounts to accompany the meal. If snacks are made, they should be of moderate size and filled with allowed foods.
- Cereals without honey or chocolate or low-fat "Maria" cookies.
- Water as the main drink.



Physical exercise is, along with diet, the other basic pillar of treatment. In general, it is recommended to perform an aerobic exercise at least 5 days a week, for at least 30 minutes and if the child is not accustomed initially, settling progressively.

The type of exercise should be adapted to the age of the child, using free play such as running, swimming, etc.

Preschoolers



Games that stimulate motor skills and balance, more organized such as football, basketball, etc..

6 to 9 years



Playing more complex games in pre-teens, or exercising with all kinds of sports in adolescence.

In more complicated and serious cases the use of some pharmacological treatment in a controlled manner may be indicated, whose function may be to interfere with the regulation of appetite and satiety at the level of the central nervous system, increase energy expenditure or the use of body fat, or inhibit the capture of energy in the intestine. Thus, drugs such as metformin, orlistat, sibutramine, topiramate, etc. are used.

On the other hand, in children the indication for surgical treatment is exceptional. Thus, the indications for bariatric surgery (gastric bypass or laparoscopic band) are strict: patients over 13 years of age, with severe or morbid obesity, with previous therapeutic failures and a certain pubertal development (Tanher III).

Prevention

Due to the great impact on children's health that obesity produces, the prevention of obesity is established from the first years of life, as a fundamental strategy in all areas: health, family, school, community, and business.

Direct education to families and, specifically, to children from early childhood, is fundamental for the acquisition of healthy lifestyle habits that help prevent obesity, something in which the family and school play an important role, as well as health institutions. To this end, scientific bodies are obliged to disseminate the risks posed to children by poor nutrition and inadequate lifestyles. Likewise, the regulatory efforts of public administrations should be aimed at eliminating misleading advertising campaigns on food, the effective control of food suitable for child consumption, as well as the empowerment and promotion of healthy foods.

From the conception of the child, pregnancy takes on special importance due to the future influence, the adequate diet of the pregnant woman, with a diet rich in fruit and vegetables and a maximum objective of weight increase of no more than 12 kg. In the newborn, the promotion of breastfeeding, named on many scientific studies as a protective factor against obesity, will gain importance. Likewise, if artificial lactation formulas are needed, they must have an adequate protein intake and a correct composition with essential fatty acids.

From the introduction of complementary nutrition to adolescence and the transition to adulthood, maintaining a balanced and healthy diet, adapted at each stage to the child's energy requirements, is fundamental in prevention.

In children, the maintenance of other habits such as adequate sleep hygiene, a set schedule of meals and family accompaniment and reinforcement, are also important.

Physical exercise is always important and fundamental at this stage of life. Any type of non-regulated physical activity should be encouraged (walking, playing time, traveling, using bicycles, scooters, swimming, etc.), as well as those structured into specific sports according to the age of the children (football, basketball, athletics, etc.).

Bibliography

- J. Guerrero et al. (2009) 5th edition. Manual of Diagnosis and Therapeutics in Pediatrics. La Paz Children's Hospital.
- M. Cruz. (2013). Pediatrics manual. Ergon.
- R.A Lama More et al. (2006). Childhood Obesity. Recommendations of the Nutrition Committee of the Spanish Pediatrics Association. Part I. Prevention Early detection. Role of the pediatrician. Pediatric Annals; 65(6):607-15.
- J. Dalmau Serra et al. (2007). Childhood Obesity. Recommendations of the Nutrition Committee of the Spanish Pediatrics Association. Part II. Diagnosis. Comorbidities. Treatment Pediatric Annals; 66(3):294-304.
- L. A. Moreno Aznar et al. (2010) 2nd edition. Obesity Spanish Pediatrics Association. Diagnostic-therapeutic protocols of Gastroenterology, Hepatology and Pediatric Nutrition. Ergon. 300 - 323.
- X. Raimannt. F. Executioner. (2011). Physical activity in the prevention, and treatment of childhood obesity. Rev. Med. Clin Counts; 23(3) 218-225.
- S. G. Hassink (2010). Childhood obesity. Prevention, interventions, and treatment in primary care. Pan-American.
- E. Miqueleiza et al. (2014). Socio-economic pattern of unhealthy eating in children and adolescents in Spain. Primary Care; 46(8):433-439.
- C. Ariza et al. (2015). Prevention of childhood obesity from a community perspective. Primary Care. 47 (4): 246-255.
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