

HARMONY AND FATIGUE

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Abstract

This article discusses hormones, obesity and its levels, causes and treatments.

Obesity is the excess accumulation of fat in the body. This pathology appears when body weight increases by 20% or more. In this case, the patient suffers not only psychologically, but also from pathologies of internal organs. Obesity is a global epidemic today, with people of all ages experiencing obesity. Treatment of this disease includes physical activity, diet, medication and correction of the psycho-emotional state.

Function of adipose tissue

Many people do not know that there are two types of adipose tissue in the human body: gray adipose tissue and white adipose tissue. Gray adipose tissue is produced by the mitochondria of cells. It is the gray fabric that provides warmth to a person when he is not moving. These tissues accumulate around the thyroid gland and kidneys. It accumulates in a mixed manner in the chest area and in the shoulder area, between the shoulder blades.

Significant fat accumulation is due to an increase in white adipose tissue. These tissues are composed of fat cells (adipocytes) and have the appearance of a large bubble, the nucleus of which is located on the periphery rather than in the center. A lot of these fat cells accumulate under the skin, especially in the abdominal area. The thickness of the fat layer in the abdominal area in some cases can reach 20 cm or more. In addition, in the abdominal cavity there is an organ that accumulates fat - charvi.

Fat cells are also located in the back of the stomach, around the pancreas, aorta and flagella.

The main functions of adipose tissue are:

Energetic Zaksira. When fats are broken down, 2 times more energy is released than when carbohydrates are broken down. That is why adipose tissue plays the role of the largest energy reserve in all types of life.

Participates in water exchange and passive detoxification of toxic substances. As a result of the breakdown of fats, a large amount of water is lost, which prevents dehydration of the body during physical activity, increased sweating and fasting. In addition, fats have the ability to store and neutralize toxic substances.

Vitamins A, D, E, K dissolve and accumulate in oil.

Endocrine function. Adipose tissue synthesizes many biologically active substances, especially sex hormones. Let's talk about endocrine function in more detail. It has now been proven that the hormones leptin and estrogens are synthesized in adipose tissue.

Leptin was first isolated in 1994. At first, this substance was perceived as a satiety hormone and was prescribed as a means of weight loss. However, recent studies have shown that this hormone controls the time between meals. For example, a decrease in the amount of the hormone leptin causes a feeling of hunger, but as a result of its effect, it is unprofitable for an obese person to lose weight. Despite this, the amount of this hormone in the blood of obese people is high.

Estrogen. Adipose tissue contains the P450 aromatase enzyme, which takes up male hormone and converts female hormone into estrogen. As a person ages and becomes obese, this process accelerates.

In the body of 10% to 60% of healthy women, sex hormones are synthesized from adipose tissue and accumulate there. Menstruation in teenage girls and their gender status are directly related to the amount of adipose tissue. During menopause (when menstruation stops), the source of steroid hormones in women is adipose tissue, and the activity of these tissues determines how the menopause will proceed. Based on these characteristics, sexual activity, pregnancy, breast activity and the appearance of a "barrel" belly in men are determined.

In addition to leptin and estrogens, resistin, adiponectin, tumor necrosis factor α and a number of enzyme proteins are synthesized in adipose tissue.

Despite the many positive aspects of adipose tissue, obesity is a disease that has a negative impact on the human body.

Causes of obesity

Obesity is caused, first of all, by a violation of the energy metabolism ratio, that is, a person consumes extra calories, but spends less of them; they accumulate in fatty tissues. As a result, body weight increases and the function of internal organs is impaired. In 90% of cases, obesity is related to nutrition, the remaining reasons are metabolic.

As a result of dysfunction of the hypothalamus and pituitary gland, the nutritional process is disrupted. In obese patients, the synthesis of somatotrophic hormone decreases; this hormone has lipolytic properties (breaks down fats), hyperinsulinemia, and disrupts the metabolism of the thyroid gland.

The accumulation and consumption of adipose tissue depends on several factors:

The ratio of energy received and spent;

Composition of meals;

Synthesis and breakdown rate of fat cells;

Genetic (hereditary) predisposition.

Factors leading to obesity:

lack of physical activity;

Hereditary predisposition;

Excess food: a lot of carbohydrates, fats, salt and sugar;

Endocrine diseases: dysfunction of the thyroid gland;

Mental changes;

Bad habits;

Certain physiological conditions (pregnancy, menopause, breastfeeding);

Uncontrolled use of hormone-sparing and psychotropic drugs.

Thus, obesity is a pathology that can be found in men and women at any age, even in children. Obesity should be treated under the supervision of a specialist to get rid of complications and a decrease in a person's quality of life. In modern medicine, obesity is mainly dealt with by endocrinologists.

Types and degrees of obesity

Based on where fats accumulate, they are classified as follows:

Femoral-gluteal type - more common in women, fat accumulates in the hips and buttocks;

Abdominal type - more common in men, fat accumulates predominantly in the abdominal area;

Combined type - fat accumulates evenly throughout the body.

Obesity can develop continuously or remain stable. If we consider the mechanism of origin of the disease, it is divided into primary, secondary and endocrine types.

Primary - as a result of the action of nutritional (food) or exogenous factors;

Secondary - most often occurs due to genetic predisposition and in certain brain pathologies. This type can be called symptomatic;

Endocrine - obesity occurs due to dysfunction of any endocrine gland;
In all of the above cases, the patient is hypodynamic (sedentary).

The degree of obesity is determined by the body mass index (TVI), using the formula $TVI = \text{kg} / \text{height}^2$, which is the ratio of your body weight to the square of your height (in meters). Accordingly, obesity has the following levels:

The first level is TVI from 25 to 30, at which it is easy to get rid of excess body weight, it is enough to exercise and follow a diet;

If the second TVI level is 30-35, there is a risk of developing pathologies of the cardiovascular system. A feature of this level is the rapid restoration of body weight lost during treatment.

Signs of obesity

The main sign of obesity is excess weight. In patients with a lot of fat, fat accumulates in the shoulders, arms, back, abdomen, buttocks and thighs. In such patients, the muscles in this area are poorly developed. Consequently, they have an increased risk of hip and inguinal hernias.

Obesity of the first degree does not have clearly distinguishable signs. Some patients may experience increased sweating, drowsiness, swelling, constipation and spinal pain. In later stages, patients experience clearly noticeable symptoms in the respiratory, cardiovascular and digestive systems. In women, as a result of obesity, menstrual irregularities and even cessation of menstruation occur. In addition, defects in the reproductive system occur and potency in men decreases.

Depending on the stage of the disease, patients experience a feeling of hunger at night, a number of endocrine disorders, and sleep disturbances. As a complication of the disease, problems such as hypertension, chronic respiratory and cardiovascular failure, pancreatitis, cholecystitis, arthrosis of the joints of the lower parts of the body, and spinal dysfunction can be mentioned. As a result of increased sweating, various skin changes, rashes and dermatitis appear. As a result of these complications, the risk of developing diabetes, stroke and heart attack increases.

At the same time, obesity causes defects in appearance, affects the human psyche, reduces self-esteem, and leads to depression and neuroses.

Obesity treatment

get rid of obesity

Comprehensive obesity treatment is not only cosmetically effective, but also improves health and quality of life. At the beginning of treatment, a special diet and exercise are prescribed. The amount of foods rich in fats and carbohydrates is

reduced and calories are reduced, foods rich in protein and fiber are recommended. If the patient is hospitalized in the final stages of obesity, he will be treated with fasting for a certain period of time. Physical exercises begin with simple walking, that is, the patient is asked to walk at least 10,000 steps in 1 day. Physical exercises are strictly prescribed by a specialist. After all, cardio can be observed, for example, during exercises such as swimming, running, cycling. Exercises should be performed 3-5 times a week for 30-40 minutes a day.

Maintaining a healthy lifestyle is of great importance in the fight against obesity. Over time, this lifestyle becomes a habit and can become the basis for not gaining weight again.

Some people, having gotten rid of obesity, begin to eat poorly and lead a sedentary lifestyle again, and quickly become easily obese.

If necessary, the doctor prescribes medications. Such drugs are strictly recommended individually, but the effect is the same for everyone. Their dose is determined together with diet and exercise. The basis for prescribing drugs is that diet treatment has no effect for more than 3 months and the TVI is 30.

Drug treatment is carried out with amphetamine drugs, the effect of which does not cause a feeling of hunger. But such drugs also have side effects, such as sleep disturbances, allergic reactions, vomiting, etc. In some cases, antidepressants can also help.

And to eliminate psycho-emotional states, psychotherapy is prescribed. Surgical treatment helps in severe cases of obesity. Bariatric surgery is performed in cases where TVI exceeds 40. Such operations include gastric banding, vertical gastroplasty, and gastric bypass. To improve the cosmetic appearance, liposuction is performed - local fat removal.

CONCLUSION:

The fight against obesity is a process that requires a long time, patience and will. Many people give up early in the fight against obesity; at such a time, the support of loved ones and the advice of doctors is of great importance; proper treatment and measures help the patient and increase self-confidence. Over time, a person gets used to a healthy lifestyle and it becomes a habit. Be always healthy!

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