

Abstract: This article discusses the role and importance of hormones in human behavior and neurophysiological basis.

Keywords: hormone, adrenocorticotrophic hormone, stress, estrogens, endocrine, ghrelin.

Hormones (ancient Greek: hormáo - hormanino - to stimulate) are biologically active substances that are produced in the internal secretion glands (endocrine glands) and enter the blood and tissue fluid. They spread throughout the body and control the activity of various organs and tissues.

Some of them affect certain organs, for example: Thyrotropin hormone - mainly in the thyroid gland, Adrenocorticotrophic hormone (ACTG) - in the cortex of the adrenal glands, Estrogens affect the uterus, etc.

Others (thyroid hormones, corticosteroids, growth hormone, etc.) affect all tissues of the body (general).

The specific effects of hormones depend on their different chemical composition, for example: Insulin affects carbohydrate metabolism.

Testosterone and other Androgens enhance assimilation processes, cause accumulation of nitrogen in the body,

Glucocorticoids change the metabolism and increase glycogen production in the liver, especially the breakdown of proteins in connective and lymphoid tissue. Estrogens increase protein synthesis with phospholipids in the uterus.

Growth hormone (Somatotrophic hormones) affects fat, phosphorus and calcium metabolism.

affect the metabolism by stimulating the genetic apparatus of the cell, activating enzymes and changing the rate of enzymatic reactions. They increase the formation of informative ribonucleic acid, which determines the structure of the protein, and affect the biosynthesis of proteins. Growth and sex hormones control the body's growth and puberty. When necessary, the body's capabilities are mobilized with the participation of hormones. For example, when there is a threat of danger and in this regard, when the muscles are strained, adrenaline is released more, increases blood glucose, increases blood flow to the heart and brain; ACTG is released more when the harmful effect on the body increases. In order for the body to live and work normally, hormones must be produced as needed. Nervous, humoral and hormonal factors interact and contribute to this. Sometimes the nervous system is directly connected with endocrine glands. This is evidenced by a large release of adrenaline from the medulla of the adrenal glands when the abdominal nerve is

affected. Sometimes the impulse travels through nerve fibers to the hypothalamus, where substances called releasing hormones (factors that secrete pituitary hormones) are formed, these substances enter the pituitary gland and cause additional release of pituitary (tropic) hormones, which increase the release of hormones from the endocrine gland in the periphery. If, for some reason, hormones increase in the body, the release of releasing hormones from the hypothalamus stops, as a result, the pituitary releases less of the corresponding tropic hormones, and then the release of hormones from the endocrine gland in the periphery also decreases. When some hormones are reduced in the blood (for example, when hormones are broken down quickly in the tissues), release of releasing hormones increases, the pituitary gland works more tropic hormones, and then the peripheral gland produces more hormones. The hypothalamus also produces neurohormones (prolactostatin, melanostatin, samotostatin) that inhibit some pituitary hormones. Under their influence, the formation of the corresponding pituitary hormones decreases. The amount of hormones in the blood is controlled by itself. For example, when glucose increases, it accelerates the breakdown of glycogen, reducing the concentration of adrenaline, which increases glucose levels. When there is a lack of sodium salts in the body, the release of aldosterone from the cortical layer of the adrenal glands increases, as a result, more sodium salts are reabsorbed in the kidney tubules and are retained in the body. So, hormones are produced in a certain amount and ensure metabolism and other functions of the body.

Hormones are produced by endocrine glands. The word "endocrine" means the internal secretion of a gland. In other words, they can be called ductless glands. Because they release their secretions not into the capillaries, but directly into the blood. Hormones are also produced by some internal organs, such as the liver and kidneys. But most of the hormones in the body are produced by the glands.

Each of the hormones has its own effect on the body. In general, the function of hormones is to control the internal functions of the body, such as growth and nutrition, the accumulation and use of nutrients, and the reproduction process. If the glands produce insufficient or excessive amounts of hormones, deviations in a person's physical development may be observed.

several major glands and hormones in our body, most notably the thyroid gland in the neck. It produces a hormone that affects growth, development and metabolism in the body. The pituitary gland, located at the base of the skull, consists of two parts. A hormone produced by part of this gland is known to control growth.

Another part of the pituitary gland helps regulate water and fat intake, and produces two hormones that control blood pressure and the body's metabolism.

Other important glands located on top of each kidney. They produce a hormone called adrenaline. This hormone is associated with blood pressure and the body's response to stressful or emotional situations. When we are excited or afraid, large amounts of this hormone are produced. Other glands in the body are associated with our gender and determine whether the fetus is a boy or a girl. Thus, we have become convinced that hormones are very important for us and our health.

Stress, drugs, metabolic diseases - there can be many reasons for changes in the hormonal level. But hormonal imbalances are often overlooked, and fatigue, weight changes, and other symptoms are attributed to aging or overwork. If at least a few of the symptoms listed in the "Domashniy Ochag" publication are observed, it is definitely recommended to meet with a gynecologist-endocrinologist.

Increased appetite

If the feeling of constant hunger does not leave and the usual diet is not enough, it is necessary to check the balance of thyroid hormones. In hyperthyroidism, when thyroid hormones are produced in large quantities, the body burns more calories and increases appetite. In addition, constant hunger can occur due to an increase in the level of the stress hormone cortisol: the body tries to store more energy in a dangerous situation.

Hair loss

An increase in testosterone levels in women causes male pattern hair loss. Often, an increase in this hormone indicates polycystic ovary syndrome, which not only reduces the likelihood of having children, but can also increase the risk of diseases such as diabetes or cancer.

Weight change

appear without any reason indicate a hormonal imbalance. Weight gain can indicate excess cortisol or testosterone or warn of an underactive thyroid. A sudden weight loss may indicate that the thyroid gland, on the contrary, is working more actively than necessary and that too many hormones produced by it enter the bloodstream.

Mood swings

to see this symptom in women who are pregnant or going through menopause, but when hormones are out of balance, serious mental changes can afflict women of any age.

Constant fatigue

An imbalance in any system of the body, including the hormonal system, will certainly lead to a decrease in energy levels. If you get tired quickly, you can't rest in any case, the changes cannot be attributed to age or stress. Of course, you should consult a doctor. Constant fatigue and weakness is a very dangerous symptom that cannot be ignored.

Sleep disturbance

If you don't get enough sleep at night, cortisol levels rise, and high cortisol interferes with sleep. Insomnia can also be caused by an increase in thyroid hormone, and if this hormone is low, lethargy and sleepiness are observed. In any case, sleep disorders are especially sudden and do not occur for any external reasons. This is a reason to see a doctor.

Memory and attention disorders

If the thyroid gland does not work well and hormones are not produced, cognitive functions may deteriorate: memory, concentration and the ability to perceive information deteriorate. If it becomes difficult to perform daily tasks and inattention increases, it is necessary to consult an endocrinologist.

Bone fracture

After entering the body, vitamin D, which is necessary for bones, is converted into the hormone calcitriol. If calcium and vitamin D intake is sufficient, but the bones are weak, this hormone or the thyroid hormone that helps control calcium levels may be out of balance.

Leptin

This hormone controls appetite and is responsible for energy metabolism. It is called the main hormone of satiety and obesity. Low levels of leptin cause increased appetite and lead to obesity. If there is a lot of fat in the cells of the body, the level of leptin increases. In this way, the brain is told "Stop eating!" command is sent. However, excess leptin increases the risk of thrombosis.

Ghrelin

It is produced in the gastrointestinal system and stimulates the feeling of hunger. Ghrelin stimulates the nervous system and protects the cardiovascular system. If you eat often, the level of ghrelin will be low. However, the stress of anxiety and depression increases. A high level of the hormone in the absence of food reduces anxiety. There is a circle without beginning and end - after the diet, the appetite becomes loud. Therefore, you should not eat more than 4-5 times a day. 2 of them should be snacks. Special attention should be paid to breakfast.

Estrogen and progesterone

Women's sex hormones show themselves after the age of 45, when women begin menopause. A low level of estrogen contributes to the accumulation of fat

cells in the abdominal area. A low level of progesterone forces the body to accumulate more fluid. By itself, the body size increases.

Testosterone

Changes in the menstrual cycle and polycystic ovaries are sometimes caused by high levels of testosterone. This leads to uncontrolled weight gain, facial hair, acne and infertility. During menopause, low levels of testosterone decrease the rate of metabolism, which becomes one of the causes of obesity.

Insulin

in fat metabolism by suppressing the activity of enzymes that break down fats produced by the pancreas . Insulin contributes to the production of excess sugar in adipose tissue . If you like sweets , you should know that eating too much of them will increase the level of insulin, and as a result, excess weight will appear around the belly.

Thyroid hormones

Disturbances in thyroid function can lead to weight gain. Thyroid hormones are substances that increase the activity of breaking down fats. Hypothyroidism occurs when hormones are at low levels. The disease is aggravated by the accumulation of fat and is accompanied by obesity. In hyperthyroidism, weight loss occurs.

Somatotropin

Somatotropin is a growth hormone that contributes to weight loss. Normally, this hormone activates the release of fats by cells and their melting. A low level of somatotropin slows down all processes in the body.

Cortisol

It is called stress hormone. The main reason for its excessive secretion is stress and lack of sleep. Excess levels of cortisol increase appetite. To overcome the problem, many women "eat it with food" and feel relief. People who are constantly in stressful situations tend to gain weight even if they don't overeat. This is due to the disturbance of metabolism during nervous tension.

Endocrine diseases, diabetes, increased sex hormone levels are closely related to uncontrolled weight gain. It is necessary to pass a special laboratory study to identify and rule out pathology. Below is a list of tests that will allow you to detect and stop dangerous diseases in the early stages. Tests that should be carried out when you cannot lose weight

Thyroid hormones: thyroxine (T4) and triiodothyronine (T3)

Thyroid stimulating hormone (TSH)

Blood glucose level

Glycylated hemoglobin

Insulin and S-peptide
Glucose tolerance test
Estradiol indicator
Cortisol index
Testosterone indicator
Follicle stimulating and luteinizing hormones

is always under the rule of hormones . In 70 percent of cases, hormonal imbalance becomes the cause of overweight. Don't be too lazy to get checked before going to the gym, restricting your diet . In some cases, a few kilograms of excess weight is better than impaired health.

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Some are specific to members, such as:

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