

THYROID GLAND STRUCTURE, FUNCTION AND DEFICIENCY

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Abstract: The thyroid gland is a butterfly-shaped organ located at the base of the neck. It releases hormones that control metabolism—the way your body uses energy. Thyroid hormones regulate the vital functions of the body. The thyroid gland is about 2 inches long and is located in the front of your throat, below the thyroid cartilage, sometimes called the Adam's apple. The thyroid gland has two sides that lie on either side of your airway and are usually connected by a band of thyroid tissue known as the isthmus. Some people have no isthmus and instead have two separate thyroid lobes. This gland is responsible for the secretion of thyroid hormone (thyroxine). If there is a problem with the thyroid gland, it should be treated in time and should not be ignored.

Thyroid hormone is an important hormone for fetal or growth development and also plays an important role in the control of body temperature, muscle tone and strength, growth hormone secretion, and emotional state in adults. Therefore, our body regulates the amount of thyroid hormone to maintain a normal amount at all times, so that there is no excess or deficiency. Insufficiency of the function of the thyroid gland, as we mentioned above, leads to various negative consequences. In order to prevent such problems, it is very important for everyone to have information about the thyroid gland, how its initial symptoms are, and to consult a doctor in time to prevent such negative consequences. Do not be indifferent to your health.

Keywords: Thyroid gland, thyroxine, isthmus, metamorphosis, metabolism, pituitary gland, T3, T4, hypothyroidism, hyperthyroidism, thyroiditis. Usually, hereditary and acquired forms of hemolytic anemia are distinguished. Under physiological conditions, erythrocytes live 100-120 days. Then, the pigment free bilirubin formed as a result of the breakdown of erythrocytes by macrophages in the spleen, which loses its deformability, circulates in the blood and goes to the liver, where it binds with glucuronic acid with the help of enzymes. Bilirubin glucuronide enters the intestine as part of bile.

Relevance of the problem: Thyroid hormone is an indispensable substance for humans. As a result of malfunction of this gland, various diseases and deficiencies occur in the human body. The lack of complete information about this gland in many layers of the population and the increase in various diseases as a result of the dysfunction of this gland is one of the urgent problems of today.

The purpose of research: The purpose of our research is to prevent changes and diseases caused by the effect of the gland on the human body as a result of its deficiency, and to help the population acquire knowledge and skills about this gland.

Material and examination methods: Thyroid gland (shányg-, English: thyroid gland or thyroid gland) is the largest of the endocrine systems that secrete hormones in the human body, and it is an important organ that produces thyroid hormone (thyroxine) to maintain proper body functions.



Thyroxine regulates the rate of metabolism in warm-blooded animals, especially the catabolic effect, and stimulates metamorphosis in amphibians and molting in amphibians and reptiles. The original word (thyroid gland, thyroid gland) is derived from the Greek word Thyreos, which means shield. The thyroid gland wraps around the airway in a butterfly shape under the larynx, which projects forward in the middle of the neck. The size of one wing is about 1-2 cm wide, 2-3 cm thick and 5 cm high, and the total weight is about 15-20 g. It is usually surrounded by muscles, so it cannot be seen from the outside and can rarely be touched. It consists of two butterfly-shaped wings, left and right, and a narrow joint connecting these wings. A total of 4 parathyroid glands are attached on the back, 2 on the left and 2 on the right. The thyroid gland produces thyroid hormones, stores them, and releases them into the blood when needed. Thyroid hormone is an indispensable substance for humans. It stimulates metabolic processes in the human body and maintains the proper functioning of all organs. For example, by generating heat to maintain a constant body temperature, it plays a role in helping the growth of bones. and development. If thyroid hormone is deficient prenatally or during growing up, short stature and low intelligence will result. Thyroid hormone finely regulates various metabolisms in the body, so that the energy produced is used properly. In other words, it increases heart rate, responds properly to stress, increases red blood cell production to ensure adequate oxygen supply, and ensures better muscle and bone function. It also helps other hormones to function properly. Thyroid hormones regulate vital body functions, including:

- Breathing;
- Heart rate;
- Central and peripheral nervous systems;
- Body weight;
- Muscle strength;
- Menstrual cycles;
- Body temperature;
- Cholesterol level.

The thyroid gland is part of the endocrine system, which consists of glands that produce, store, and release hormones into the bloodstream, where the hormones reach the body's cells. The thyroid gland uses iodine from the foods you eat to make two main hormones:

- Triiodothyronine (T3)
- Thyroxine (T4)

It is important that T3 and T4 levels are not too high or too low. Two glands in the brain, the hypothalamus and pituitary gland, communicate to maintain the balance of T3 and T4.

The hypothalamus produces TSH-releasing hormone (TRH), which signals the pituitary gland to make more or less T3 and T4 by increasing or decreasing the release of a hormone called thyroid-stimulating hormone (TSH). (Figure 1)



- When blood levels of T3 and T4 are low, the pituitary gland releases more TSH to signal the thyroid gland to produce more thyroid hormones.
- If T3 and T4 levels are high, the pituitary gland will release less TSH to the thyroid gland to slow down the production of these hormones.

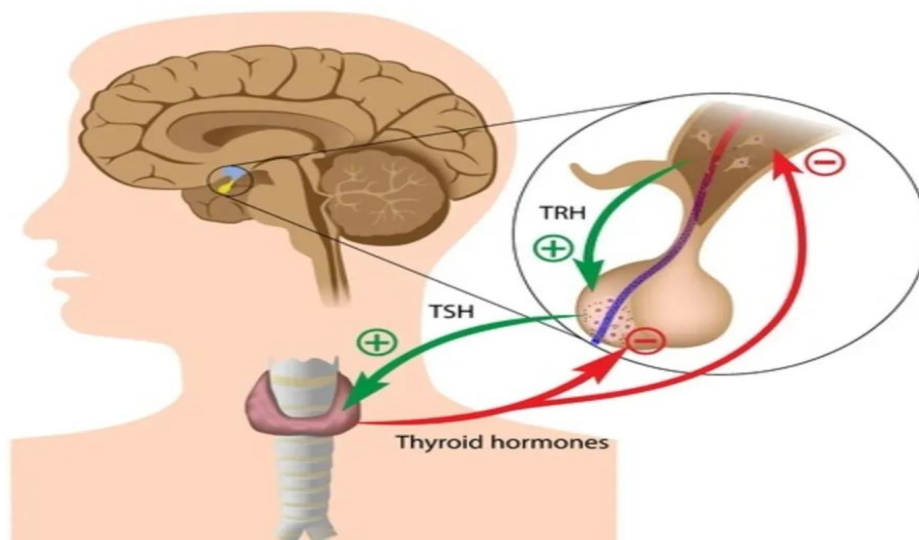


Figure 1

Why do we need a thyroid gland? T3 and T4 enter the bloodstream to reach almost every cell in the body. Hormones regulate the rate of cell metabolism. For example, T3 and T4 regulate your heart rate and how quickly your intestines process food. Thus, if T3 and T4 levels are low, the heart rate may be slower than normal and constipation may lead to weight gain. If your T3 and T4 levels are high, you may have a fast heart rate and diarrhea and weight loss. The following are symptoms of too much T3 and T4 in the body (hyperthyroidism):

- Irritability or moodiness;
- Irritability, hyperactivity;
- Sweating or sensitivity to high temperature;
- Trembling of hands (shaking);
- Hair loss;
- Missed or light periods.

Below are other symptoms that may indicate that you have too little T3 and T4 in your body (hypothyroidism):

- Sleep problems;
- Fatigue and fatigue;
- Difficulty concentrating;



- Dry skin and hair;
- Depression;
- Sensitivity to cold temperatures;
- Frequent, heavy periods;
- Joint and muscle pain.

What are thyroid diseases? ① Hyperthyroidism: Too much thyroid hormone ② Hypothyroidism: Lack of thyroid hormone ③ Thyroiditis: Inflammation of the thyroid gland. The amount of thyroid hormone varies from situation to situation. ④ Thyroid nodules: When part of the thyroid gland enlarges and forms a lump, there are benign tumors, malignant tumors (cancer) and cysts (cysts). In most cases, thyroid hormone levels are normal.

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