

Endocrine Disorders

The endocrine system is a network of glands that produce and release hormones that help control many important body functions, including the body's ability to change calories into energy that powers cells and organs. The endocrine system influences how your heart beats, how your bones and tissues grow, even your ability to make a baby. It plays a vital role in whether or not you develop diabetes, thyroid disease, growth disorders, sexual dysfunction, and a host of other hormone-related disorders.

Glands of the Endocrine System

Each gland of the endocrine system releases specific hormones into your bloodstream. These hormones travel through your blood to other cells and help control or coordinate many body processes.

Endocrine glands include:

- **Adrenal glands:** Two glands that sit on top of the kidneys that release the hormone cortisol.
- **Hypothalamus:** A part of the lower middle brain that tells the pituitary gland when to release hormones.
- **Ovaries:** The female reproductive organs that release eggs and produce sex hormones.
- **Islet cells in the pancreas:** Cells in the pancreas control the release of the hormones insulin and glucagon.
- **Parathyroid:** Four tiny glands in the neck that play a role in bone development.
- **Pineal gland:** A gland found near the center of the brain that may be linked to sleep patterns.
- **Pituitary gland:** A gland found at the base of brain behind the sinuses. It is often called the "master gland" because it influences many other glands, especially the thyroid. Problems with the pituitary gland can affect bone growth, a woman's menstrual cycles, and the release of breast milk.
- **Testes:** The male reproductive glands that produce sperm and sex hormones.
- **Thymus:** A gland in the upper chest that helps develop the body's immune system early in life.
- **Thyroid:** A butterfly-shaped gland in the front of the neck that controls metabolism.

Even the slightest hiccup with the function of one or more of these glands can throw off the delicate balance of hormones in your body and lead to an endocrine disorder, or

endocrine disease.

Causes of Endocrine Disorders

Endocrine disorders are typically grouped into two categories:

- Endocrine disease that results when a gland produces too much or too little of an endocrine hormone, called a hormone imbalance.
- Endocrine disease due to the development of lesions (such as nodules or tumors) in the endocrine system, which may or may not affect hormone levels.

The endocrine's feedback system helps control the balance of hormones in the bloodstream. If your body has too much or too little of a certain hormone, the feedback system signals the proper gland or glands to correct the problem. A hormone imbalance may occur if this feedback system has trouble keeping the right level of hormones in the bloodstream, or if your body doesn't clear them out of the bloodstream properly.

Increased or decreased levels of endocrine hormone may be caused by:

- A problem with the endocrine feedback system
- Disease
- Failure of a gland to stimulate another gland to release hormones (for example, a problem with the hypothalamus can disrupt hormone production in the pituitary gland)
- A genetic disorder, such as multiple endocrine neoplasia (MEN) or congenital hypothyroidism
- Infection
- Injury to an endocrine gland
- Tumor of an endocrine gland

Most endocrine tumors and nodules (lumps) are noncancerous. They usually do not spread to other parts of the body. However, a tumor or nodule on the gland may interfere with the gland's hormone production.

Types of Endocrine Disorders

There are many different types of endocrine disorders. Diabetes is the most common endocrine disorder diagnosed in the U.S.

Other endocrine disorders include:

Adrenal insufficiency. The adrenal gland releases too little of the hormone cortisol and sometimes, aldosterone. Symptoms include fatigue, stomach upset, dehydration, and skin changes. Addison's disease is a type of adrenal insufficiency.

Cushing's disease. Overproduction of a pituitary gland hormone leads to an overactive adrenal gland. A similar condition called Cushing's syndrome may occur in people,

particularly children, who take high doses of corticosteroid medications.

Gigantism (acromegaly) and other growth hormone problems. If the pituitary gland produces too much growth hormone, a child's bones and body parts may grow abnormally fast. If growth hormone levels are too low, a child can stop growing in height.

Hyperthyroidism. The thyroid gland produces too much thyroid hormone, leading to weight loss, fast heart rate, sweating, and nervousness. The most common cause for an overactive thyroid is an autoimmune disorder called Grave's disease.

Hypothyroidism. The thyroid gland does not produce enough thyroid hormone, leading to fatigue, constipation, dry skin, and depression. The underactive gland can cause slowed development in children. Some types of hypothyroidism are present at birth.

Hypopituitarism. The pituitary gland releases little or no hormones. It may be caused by a number of different diseases. Women with this condition may stop getting their periods.

Multiple endocrine neoplasia I and II (MEN I and MEN II). These rare, genetic conditions are passed down through families. They cause tumors of the parathyroid, adrenal, and thyroid glands, leading to overproduction of hormones.

Polycystic ovary syndrome (PCOS). Overproduction of androgens interfere with the development of eggs and their release from the female ovaries. PCOS is a leading cause of infertility.

Precocious puberty. Abnormally early puberty that occurs when glands tell the body to release sex hormones too soon in life.

Testing for Endocrine Disorders

If you have an endocrine disorder, your doctor may refer you to a specialist called an endocrinologist. An endocrinologist is specially trained in problems with the endocrine system.

The symptoms of an endocrine disorder vary widely and depend on the specific gland involved. However, most people with endocrine disease complain of fatigue and weakness.

Blood and urine tests to check your hormone levels can help your doctors determine if you have an endocrine disorder. Imaging tests may be done to help locate or pinpoint a nodule or tumor.

Treatment of endocrine disorders can be complicated, as a change in one hormone level can throw off another. Your doctor or specialist may order routine blood work to check for problems or to determine if your medication or treatment plan needs to be adjusted.

