

Hormonal Functioning of Pituitary Gland

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DESCRIPTION

At the base of brain, beneath hypothalamus, sits pituitary gland, also known as hypophysis. It is a tiny, pea-sized gland. It is situated in the sella turcica, a little space under brain. It is a part of endocrine system and is in charge of generating several important hormones. In addition, pituitary gland controls how and when other endocrine system glands release their hormones. A gland is an organ that secretes hormones, digestive juices, sweat, or tears. Endocrine glands immediately release hormones into the bloodstream.

In order to coordinate diverse biological activities, hormones are chemicals that communicate with a variety of organs, skin, muscles, and other tissues through the blood. Pituitary gland is divided into two main sections: the anterior pituitary (front lobe) and the posterior pituitary (back lobe). Pituitary and hypothalamus are connected by the pituitary stalk, a collection of blood vessels and neurons (also known as infundibulum).

Harmones of pituitary gland

The following hormones are produced and released by the anterior lobe of pituitary gland,

Adrenocorticotrophic Hormone (ACTH or Corticotrophin): Body's reaction to stress depends in part on ACTH. Cortisol, also known as the "stress hormone," is produced when adrenal glands are stimulated. Cortisol has a variety of purposes, including controlling metabolism, blood pressure, blood sugar levels, and inflammation.

Follicle-Stimulating Hormone (FSH): In those who are born as males, FSH increases sperm production. In persons who are assigned female at birth, FSH promotes the production of oestrogen and aids in the development of eggs. This substance is referred to as a gonadotrophic hormone.

Growth Hormone (GH): Growth hormone promotes growth in children. In other words, it promotes child height growth. Growth hormone affects the distribution of fat in adults and maintains strong muscles and bones. GH affects metabolism as well (how body turns the food into energy).

Luteinizing Hormone (LH): LH encourages the release of testosterone in those who were born with the gender assignment of male and female. Because it regulates the operation of the gonads-the ovaries and testes-LH is often referred to as a gonadotrophic hormone.

Prolactin: After giving birth, prolactin encourages lactation, the production of breast milk. In adults, it may have an impact on sexual and reproductive health.

Thyroid-Stimulating Hormone (TSH): TSH causes thyroid to generate thyroid hormones, which control neurological system, metabolism, and energy levels.

The following hormones are produced by hypothalamus and are stored and released by the posterior lobe of pituitary gland.

Antidiuretic Hormone (ADH, or vasopressin): This hormone controls body's salt and water balance.

Oxytocin: Oxytocin is produced by hypothalamus and is both stored and released by pituitary gland. By telling their uterus to contract, oxytocin aids in the progression of labour during childbirth in persons who were assigned female at birth. Additionally, it influences parent-child bonding and breast milk production. Oxytocin helps sperm move in persons who are born with the gender ascribed to them as male.

Functions of pituitary gland

Pituitary gland's primary job is to make and release a number of hormones that assist with vital biological processes, such as,

- Growth.
- Metabolic rate (how body transforms and manages the energy from the food eat).
- Reproduction.
- Reaction to trauma or stress.
- Lactation.
- The sodium (salt) and water balance.
- Childbirth and labour.

Pituitary gland can be compared to a thermostat. To keep comfortable, the thermostat continuously checks the temperature in house. To maintain stable air temperatures, it instructs heating

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and cooling systems to turn on or off by a specific amount.

Both the anterior, or front, and posterior, or back, of the gland release hormones. Chemicals called hormones go through circulation carrying messages from one cell to another. The pituitary gland is located directly above the hypothalamus, which communicates with it to control it.

By supplying messages or signals to the pituitary gland in the form of hormones that pass through the bloodstream and

nerve along the pituitary stalk, this acts as a communications centre for the pituitary gland. These signals in turn regulate the release and manufacture of additional hormones from the pituitary gland, which signal other bodily glands and organs. The regulation of body temperature, appetite, thirst, and water intake, as well as sleep and wake cycles, emotional behaviour, and memory, are all influenced by the hypothalamus.