

ROLE OF HORMONES SECRETED BY PITUITARY

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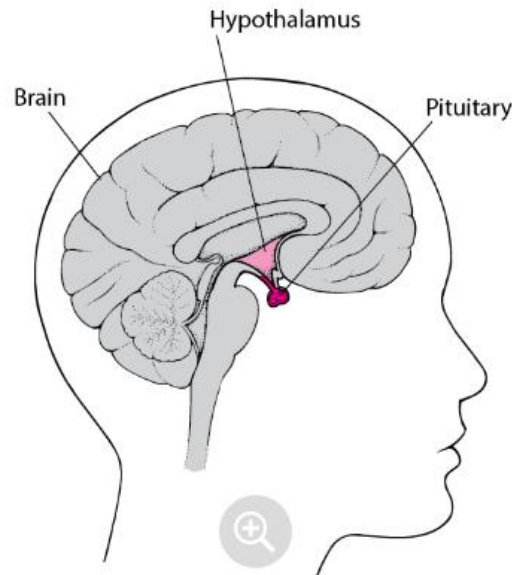
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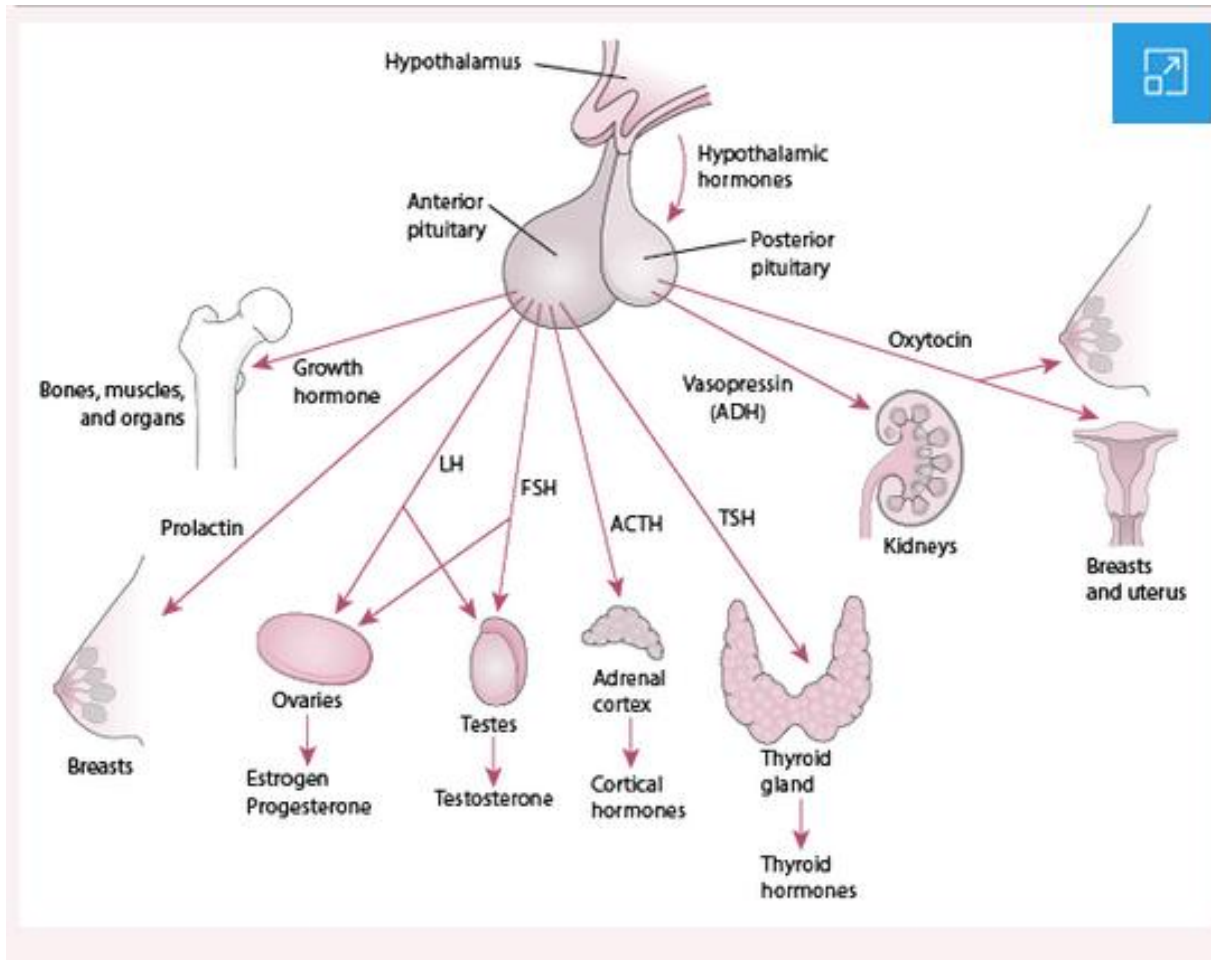
(B.Sc Part III PAPER VI Zoology Hons)

The pituitary gland is a part of endocrine system. Its main function is to secrete hormones into your bloodstream. These hormones can affect other organs and glands, especially:

- Thyroid
- Reproductive Organs
- Adrenal Glands

The pituitary gland is sometimes called the master gland because it's involved in so many processes. The pituitary gland is small and oval-shaped. It's located behind your nose, near the underside of your brain. It's attached to the hypothalamus by a stalklike structure.





The pituitary gland can be divided into two different parts:

1. The Anterior Lobe
2. The Posterior Lobe

Anterior lobe hormones

The anterior lobe of the pituitary produces and releases (secretes) six main hormones:

- Growth hormone, which regulates growth and physical development and has important effects on body shape by stimulating muscle formation and reducing fat tissue. In children this hormone is essential for a normal rate of growth. In adults it controls energy levels and well-being. It is important for

maintaining muscle and bone mass and appropriate fat distribution in the body.

- Thyroid-stimulating hormone, Stimulates the thyroid gland to secrete its own hormone called thyroxine (T4). TSH is also known as thyrotropin. Another hormone produced from the thyroid is called tri-iodothyronine or T3. Thyroxine controls many bodily functions, including heart rate, temperature and metabolism. It also helps metabolise calcium in the body.
- Adrenocorticotrophic hormone (ACTH), Adrenals Stimulates the adrenal glands to produce a hormone called cortisol. ACTH is also known as corticotrophin. Cortisol promotes normal metabolism, maintains blood sugar levels and blood pressure. It provides resistance to stress and acts as an inflammatory agent. Cortisol also helps to regulate fluid balance in the body.
- Follicle-stimulating hormone and luteinizing hormone (the gonadotropins,) Control reproduction and sexual characteristics. Stimulate the ovaries to produce oestrogen and progesterone and the testes to produce testosterone and sperm. LH and FSH are also known collectively as gonadotrophins. Oestrogen helps with growth of tissue of the sex organs and reproductive parts. It also strengthens bones and has a positive effect on the heart. Testosterone is responsible for the masculine characteristics including hair growth on the face and body and muscle development. It is essential for producing sperm and strengthening the bones.
- Prolactin, Stimulates the breasts to produce milk and is secreted in large amounts during pregnancy and breastfeeding. It is however present at all times in both males and females
- Endorphins. Endorphins have pain-relieving properties and are thought to be connected to the “pleasure centers” of the brain.
- Enkephalins. Enkephalins are closely related to endorphins and have similar pain-relieving effects.
- Beta-melanocyte-stimulating hormone. This hormone helps to stimulate increased pigmentation of your skin in response to exposure to ultraviolet radiation.

Posterior lobe hormones

The posterior lobe of the pituitary produces only two hormones:

- Vasopressin
 - Oxytocin
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- Vasopressin (also called antidiuretic hormone) regulates the amount of water excreted by the kidneys and is therefore important in maintaining water balance in the body.
 - Oxytocin causes the uterus to contract during childbirth and immediately after delivery to prevent excessive bleeding. Oxytocin also stimulates contractions of the milk ducts in the breast, which move milk to the nipple (the let-down) in lactating women. Oxytocin has some additional roles in both men and women.