

- Hormones are regulatory messengers that play a crucial role in various physiological and behavioral functions within the human body. These chemical substances are produced by endocrine glands and released into the bloodstream, where they travel to target organs or tissues to exert their effects.
- Here are some key points about hormones:
- **Types of Hormones:**
  - **Peptide Hormones:** Composed of amino acids. Examples include insulin and growth hormone.
  - **Steroid Hormones:** Derived from cholesterol. Examples include cortisol, estrogen, and testosterone.
  - **Amino Acid-Derived Hormones:** Derived from amino acids. Examples include thyroid hormones (T3 and T4).

- **Functions of Hormones:**
- **Regulation of Metabolism:** Hormones like insulin and glucagon regulate blood glucose levels.
- **Growth and Development:** Growth hormone, thyroid hormones, and sex hormones play a role in growth and development.
- **Reproduction:** Sex hormones (estrogen and testosterone) are essential for reproductive functions.
- **Stress Response:** Hormones like cortisol are released during stress to prepare the body for a "fight or flight" response.
- **Regulation of Water and Electrolyte Balance:** Hormones such as aldosterone regulate fluid and electrolyte balance.

# Endocrine glands and hormones secreted

- **Hypothalamus:** It controls the body temperature, regulates emotions, hunger, thirst, sleep, moods and allow the production of hormones.
- **Pineal:** Pineal is also known as the thalamus. It produces serotonin derivatives of melatonin, which affects sleep patterns.
- **Parathyroid:** This gland helps in controlling the amount of calcium present in the body.
- **Thymus:** It helps in the production of T-cells, functioning of the adaptive immune system and maturity of the thymus.
- **Thyroid:** It produces hormones that affect the heart rate and how calories are burnt.
- **Adrenal:** This gland produces the hormones that control the sex drive, cortisol and stress hormone.



- **Pituitary:** It is also termed as the “master control gland,”. This is because the pituitary gland helps in controlling other glands. Moreover, it develops the hormones that trigger growth and development.
- **Pancreas:** This gland is involved in the production of insulin hormones, which plays a crucial role in maintaining blood sugar levels.
- **Testes:** In men, the testes secrete the male sex hormone, testosterone. It also produces sperm.
- **Ovaries:** In the female reproductive system, the ovaries release estrogen, progesterone, testosterone and other female sex hormones.

- **Cortisol** - It has been named as the "stress hormone" as it helps the body in responding to stress. This is done by increasing the heart rate, elevating blood sugar levels etc.
- **Estrogen**-This is the main sex hormone present in women which bring about puberty, prepares the uterus and body for pregnancy and even regulates the menstrual cycle. Estrogen level changes during menopause because of which women experience many uncomfortable symptoms.
- **Melatonin** - It primarily controls the circadian rhythm or sleep cycles.
- **Progesterone** - It is a female sex hormone also responsible for menstrual cycle, pregnancy and embryogenesis.
- **Testosterone** - This is the most important sex hormone synthesized in men, which cause puberty, muscle mass growth, and strengthen the bones and muscles, increase bone density and controls facial hair growth.