KNOW OUR ENDOCRINE SYSTM
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Endocrine System

Introduction: Endocrine System consists of different Endocrine glands. The endocrine glands are ductless glands because they have no ducts or pipes. Their secretion is directly delivered into the blood stream. Their secretions are called hormones, which have the power to accelerate or retard the activity ofmebody and its organs.

Types of Endocrine Glands:

The following are eight endocrine glands:

1. Pineal gland.
2. Pituitary gland.
3. Thyroid gland.
4. Parathyroid glands.
5. Thymus gland.
6. Pancreas
7. Adrenal glands
8. Gonads

1. **Pineal Gland:** It is located between cerebral hemispheres and attached to the top of the thalamus. It secretes hormone called melatonin. It regulates our biological rhythms – sleep and wakefulness, mood, and menstrual cycles of females. It is affected by sunlight. Depressive mood or Lethargy in winter season is due to lack of melatonin, which can be treated by exposure to Sunlight.

2. **Pituitary Gland:** It is located near the (bottom of the brain; it is connected to and controlled by the hypothalamus. It is body's Master gland.

It secretes hormones: TSH (Thyroid-stimulating hormone), LH (Luteinizing hormone), FSHC (Follicle stimulating hormone), ACTH (adreno-cortico trophic hormone), and Prolactin.

The first 4 hormones (TSH, LH, FSH, and ACTH) regulate the body's reaction to stress, resistance to diseases, control blood pressure, thirst and body growth.

Prolactin secretes milk in the mother's breasts when the new born infant sucks the mother's breast nipples.

3. **Thyroid Gland:** It is located just below the larynx (or vocal cord) in the throat. It secretes a hormone called thyroxin which regulates body metabolism. In children, proper functioning of the thyroid gland is necessary for proper mental development. A serious thyroid deficiency in children will produce sluggishness (Lazy/slowness), poor muscle tone, and a type of mental retardation called cretinism.

4. **Parathyroid Glands:** Four small glands imbedded in the thyroid gland are called para- thyroid glands. They secrete a hormone called parathormone. It controls the excitability of the nervous system by regulating the ion levels in the neurons.

5. **Thymus Gland:** It is situated on the chest, below the thyroid gland. It secretes a hormone called thymosin, which supports immune responses of the body.

6. **Pancreas:** It is situated near the adrenal glands. It regulates the level of sugar in the blood by secreting two hormones that have opposing actions. These two hormones are: glucagon and insulin. Glucagon causes the liver to convert its stored sugar into blood sugar and to dump it into the bloodstream.

   Insulin, in contrast, reduces the amount of blood sugar because it burns sugar to produce energy, so that the individual feels energetic.

   Failure of Pancreas causes a disease called diabetes. An excess of insulin produces anxiety, restlessness, and mental distress.

7. **Adrenal Glands:** They are a pair of glands that sit atop the two kidneys. They play an important role in emotional arousal and sexual arousal.

Adrenal glands secrete three important hormones named as epinephrine, norepinephrine, and cortisol. First two hormones – epinephrine and norepinephrine increase blood pressure by increasing heart rate and blood flow. Cortisol increases the body's immunity to diseases. These three hormones are stress hormones.

8. **Gonads:** Gonads are basic sex glands. There are two sex glands – Ovary in the female and teste in the male.

   In Female: Female sex gland is called Ovary (ovaries plural). This ovary produces female sex cell called ovum (Ova → plural).

   Ovary produces two hormones named Estrogen (important female sex hormone) and Progesterone. Estrogen promotes female sexual characteristics (breast development, sweetness of voice, smoothness of body, sexual arousal, growth of pubic hair, etc.). Progesterone maintains pregnancy in the female.

   In Male: Male sex gland is called teste (testes → plural). This teste produces male sex cell called sperm (spermatozoa → plural).