# Cells of Endocrine Glands

## Why in News?

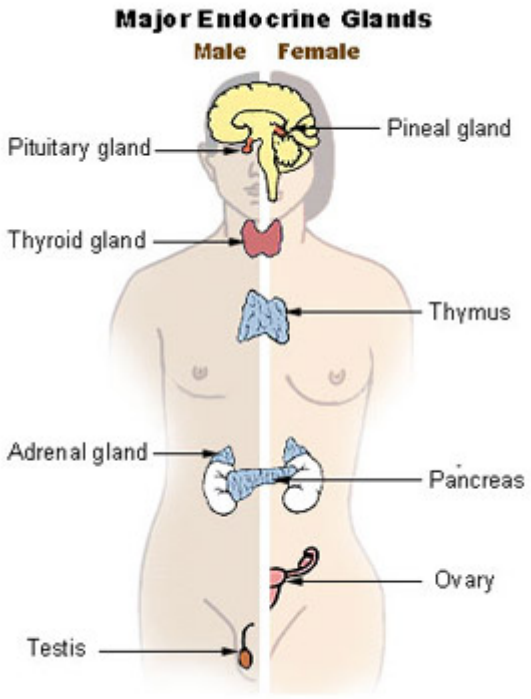
*Recent analysis at the Weizmann Institute in Rehovot, Israel shows the number of cells in an endocrine gland that secrete hormones.*

- **Endocrine Glands** – An organ that *makes hormones that are released directly into the blood* and travel to tissues and organs all over the body.
- **Functions** – It controls many body functions, including *growth and development, metabolism, and fertility.*

> ***Hormones*** *are signaling molecules found in most multicellular organisms which facilitate communication between organs and tissues in body that are far apart. The signals regulate a wide range of physiological and behavioral processes, such as growth and maturation, sleep, digestive functions, and stress responses.*

- **8 Major glands** – They are scattered *from head to toe*

| Endocrine Glands | | | |
|---|---|---|---|
| | **Location** | **Shape &/ Size** | **Weight** |
| **Pineal gland** | Midline of the brain | A grain of rice | 50-150 mg |
| **Pituitary gland** | Hypothalamus of the brain | A pea | 0.5–1 gram |
| **Thyroid gland** | Neck | A butterfly in shape | 25 grams |
| **Parathyroid gland** | 4 of which are in the neck | Size of a lentil seed | 120 mg |
| **Thymus** | Between the lungs | Pyramid-shaped lymphoid organ | Average of 20 grams |
| **Adrenal glands** | Found atop each kidney | Triangular-shaped glands | 5-10 grams in Adults |
| **Pancreas** | Behind the stomach | Tadpole-shaped gland | 80-100 grams |
| **Ovaries** | On either side of uterus in female | Oval-shaped glands | |
| **Testis** | Underneath penis in male | Round organs | |




- **Findings** – Every hormone producing cell has *about 2,000 target cells.*
- The number of hormone-secreting cells are in proportion to the number of cells that are targeted.
- Only *1-2% of cells in the pancreas produce insulin*, which targets the liver and muscle cells.
- Parathyroid gland has about 10 million cells that secrete the parathyroid hormone.
- Adrenal cortex over 5 grams has 4.5 billion cells that secrete cortisol.

*Thyroid hormones keep up metabolic balance throughout the body and Pancreas has a major role in secreting digestive enzymes.*

**References**

1. The Hindu| Analysis of Cells in each of the Endocrine Glands
2. NIH| Endocrine Glands

SHANKAR IAS PARLIAMENT
Information is Empowering