THE ENDOCRINE SYSTEM

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MAIN FUNCTION

The main function of the endocrine glands is to secrete hormones directly into the bloodstream. Hormones are chemical substances that affect the activity of another part of the body (target site). In essence, hormones serve as messengers, controlling and coordinating activities throughout the body.
Ultimately, hormones control the function of entire organs. They affect the following processes:

- Growth and Development
- Reproduction
- Sexual Characteristics
- Also, hormones influence the way the body uses and stores energy
The COMPLETE System

Major Endocrine Glands

Male  Female

Pituitary gland  Pineal gland
Thyroid gland
Thymus
Adrenal gland  Pancreas
Testis  Ovary
MAJOR ORGANS OF THE ENDOCRINE SYSTEM

1) HYPOTHALAMUS
2) PITUITARY GLAND
3) THYROID GLAND
4) PARATHYROID GLANDS
5) ADRENAL GLANDS
6) PINEAL BODY
7) REPRODUCTIVE GLANDS
8) PANCREAS
MAJOR ORGANS (CONT.)

HYPOTHALAMUS

PARATHYROID GLAND

THYROID GLAND

THE PITUITARY GLAND

Anterior commissure
Paraventricular nucleus
Lateral and medial preoptic nuclei
Anterior nucleus
Suprachiasmatic nucleus
Optic chiasm
Infundibular stalk
Anterior pituitary

Tuberal region
Anterior region
Lateral-posterior region
Thalamus
Hypothalamic sulcus
Dorsomedial nucleus
Posterior area
Mammillary body

Pituitary gland

Neurosecretory cells in hypothalamus
Artery
Capillary bed around terminals of neurosecretory cells
Secretory cells release anterior pituitary hormones

Mammillary body

For posterior pituitary gland

For anterior pituitary gland

Thyroid gland

Parathyroid gland
MAJOR ORGANS
(FURTHER CONT.)

- Pineal Gland
- Testes
- Pancreas
- Adrenal Gland
- Ovaries
FUNCTIONS OF THE ORGANS

☐ PITUITARY GLAND: Regulates hormonal activity

☐ HYPOTHALAMUS: In order for the brain to function properly and for the neurotransmitters in the brain to receive messages, the hypothalamus must be working correctly, since it is the functioning center for four of the brains most powerful hormones (neurotransmitters) that affect the mind; Serotonin, Dopamine, Norepinephrine and acetylcholine.
ORGAN FUNCTIONS

- ADRENAL GLANDS: These glands produce hormones that control stress, maintain life, spur hair growth, and ADRENALINE.

- PINEAL BODY: The pineal body controls sexual development.
FUNCTIONS (CONT)

- THYROID: The thyroid gland controls and maintains metabolism (energy).

- PARATHYROID GLANDS: These glands regulate the CRUCIAL calcium supply for the body.
ORGAN FUNCTIONS (CONT)

- REPRODUCTIVE: Reproduces.
- PANCREAS: Produces chemicals necessary for digestion. (Insulin, glucose etc.)
OTHER SYSTEMS

- CIRCULATORY SYSTEM
- NERVOUS SYSTEM
- REPRODUCTIVE SYSTEM
HOW IT WORKS WITH...

- Circulatory System: The Endocrine System secretes hormones DIRECTLY into the bloodstream.
- Nervous System: The ES works with the chemical substances that deal with COMMUNICATION and how the cells respond to those hormones.
- Reproductive System: The ES provides the necessary hormones required for sexual maturitiy.
Homeostasis is the process by which organisms maintain a relatively stable internal environment despite changes in the external environment. Maintenance of a constant internal environment is important for optimal metabolic efficiency. If the internal environment is relatively stable, this allows for a high level of efficiency for the 'running' of cells, such as enzymes having their optimum pH and temperature conditions.
DISEASES OF THE E.S.

- PITUITARY DISORDERS
- DIABETES
- GROWTH DISORDERS
- HORMONE ABUSE (Drugs etc.)
HOW TO KEEP IT HEALTHY

- Know your family history.
- Eat a healthy diet.
- Minimize **STRESS** in your life.
- Stay in touch with your doctor.
THANKS....

[] FOR WATCHING!!!