Chapter 14
Endocrine System

Learning Objectives
1. Recognize or write the functions of the endocrine system.
2. Recognize or write the meanings of Chapter 14 word parts and use them to build and analyze terms.
3. Write terms for selected structures of the endocrine system and their associated hormones and functions or match them with their descriptions.
4. Write the names of the diagnostic terms and pathologies related to the endocrine system when given their descriptions or match terms with their meanings.
5. Match surgical and therapeutic interventions for the endocrine system or write the names of the interventions when given their descriptions.
6. Spell terms for the endocrine system correctly.

Function First!
The endocrine system - composed of glands that manufacture or release hormones. Hormones - chemical substances that are secreted by endocrine glands.

Dysfunctions in hormone production:
• hyposcretion - deficiency
• hypersecretion - excess

target organ - the organ or structure toward which the effects of a hormone are primarily directed

• http://youtu.be/WVrlHH14q3o
Endocrine System

Endocrine glands release hormones in two ways:

1. in response to the nervous system.
2. in response to hormones produced by the master gland, the pituitary gland, and it is nicknamed the "master gland" for this reason.

Combining Forms: Endocrine System

- aden/o gland
  - adenoma is a tumor of a gland.

- adren/o adrenal glands
  - adrenogram is a radiograph of the adrenal glands

- andr/o male or masculine
  - androgenic means producing male characteristics

Combining Forms: Endocrine System

- gigant/o giant
  - Gigantism is a condition in which a person reaches an abnormal stature as a result of hypersecretion of growth hormone during childhood.

- gonad/o gonad
  - Hypogonadism is a condition resulting from abnormally decreased gonadal function.
Combining Forms, cont.

**pancreat/o** pancreas
- secretes many digestive juices and several important hormones, including insulin.

**insulin/o** insulin
- allows glucose to leave the bloodstream and enter cells.

**parathyroid/o** parathyroid glands
- responsible for secreting a hormone that regulates calcium and phosphorus in the body.

**ren/o** kidney
- The adrenal glands are situated atop the kidneys (ren/o).

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**thyr/o, thyroid/o** thyroid gland
The thyroid plays an important role in regulating the body's metabolism and calcium balance.

The thyroid gland secretes several important hormones:

- **calcitonin**: helps regulate the amount of calcium in the blood.
- **triiodothyronine (T_3)**
- **thyroxine or tetraiodothyronine (T_4)**.
  - (T_3) and (T_4) regulate the cell metabolism necessary for normal growth and development
  - TSH (thyroid stimulating hormone) is produced in the pituitary gland. TSH stimulates the thyroid to produce (T_3) and (T_4). [The thyroid takes iodine found in food + tyrosine (an amino acid) to make thyroid hormones T_3 and T_4]

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**Suffixes: Endocrine System**

**-gen** beginning, origin
- an **androgen** is a substance, such as the hormone testosterone, that produces or stimulates the development of male characteristics.

**-physis** growth
- hypophysis is another name for the pituitary gland.

**-tropic** stimulate
- **gonadotropic** hormones, called **gonadotropin**, are produced by the pituitary gland and act on the gonads

**-uria** urine, urination

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**Toxic/o** poison
- Thyrotoxicosis is a morbid condition caused by excessive thyroid secretion. (thyr/o=thyroid, toxic/o=poison, -osis=condition)

**iod/o** iodine
- Iodotherapy is treatment with iodine.

**myx/o** mucus
- Myxedema is a dry, waxy swelling of the skin resulting from hypofunction of the thyroid gland.

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11/19/2012
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Acromegaly (acr/o, extremity, + -megaly, enlarged) is a disorder in which there is abnormal enlargement of the extremities of the skeleton—nose, jaws, fingers, and toes—caused by hypersecretion of growth hormone after maturity.

Cretinism is a condition caused by congenital deficiency of thyroid secretion and marked by arrested physical and mental development.

Gigantism and dwarfism. Both result from abnormal secretion of growth hormone (GH).

Hypersecretion of GH during the early years results in gigantism. The person usually has normal body proportions and normal sexual development. The same hypersecretion in an adult causes acromegaly.

Hyposecretion of GH during the early years produces a dwarf unless the child is treated with GH injections.
Hypophysectomy - surgical removal of the pituitary gland.

**Surgical removal of the pituitary gland** may be performed to excise a pituitary tumor or to slow the growth and spread of endocrine-dependent malignant tumors. Hypophysectomy is done only if other treatments fail to destroy all the pituitary tumor.

**Hypopituitarism** - deminished activity of the pituitary gland, most often caused by a pituitary tumor. Treatment of a pituitary tumor consists of surgery or radiation to remove the tumor, followed by administration of the deficient hormones.

**Antithyroid drugs** - used in the treatment of hyperthyroidism to block the production of thyroid hormones.

**Adenectomy** - removal of a gland

**Thyroidectomy** - removal of the thyroid gland

**Parathyroidectomy** - surgery for removal of the parathyroid glands

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**Quick Quiz!**

*Cretinism* is marked by
A. abnormally small stature  
B. abnormally large stature  
C. abnormal enlargement of the extremities  
D. arrested mental and physical development
• http://youtu.be/jHRfDTqPzi4

CONGRATULATIONS!!