

Terminology in Health Care and Public Health Settings

Unit 7 Endocrine System

Endocrine System

- Objectives
 - Define, understand and correctly pronounce medical terms related to the Endocrine System
 - Describe common diseases and conditions, laboratory and diagnostic procedures, medical and surgical procedures and medications related to the Endocrine System

Endocrine System - Overview

- Composed of eight Endocrine Glands
- Functions in the regulation of our body's activities
- Located in various locations in body
- Acts through chemical messengers called "hormones"

Endocrine System - Overview

- The eight endocrine glands are:
 - Adrenal gland
 - Pancreas (Islets of Langerhans)
 - Pituitary gland
 - Pineal Gland
 - Ovary(ies)
 - Testicle(s)
 - Thyroid gland
 - Thymus gland

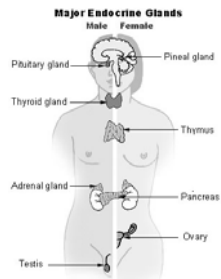
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Endocrine Glands

- Thyroid gland
- Thymus
- Adrenal gland
- Testis
- Ovary
- Pineal gland
- Pituitary gland
- Pancreas



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Endocrine System - Overview

- Hormones
 - Acts as messengers
 - Travel in our bloodstream to tissues or organs
 - Can act in varying amounts of time (minutes, hours or even weeks)
 - Affect our body's processes and functions
 - Growth and development
 - Metabolic processes
 - Sexual function
 - Reproduction
 - Mood

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Endocrine System - Overview

- Hormone Disorders
 - Levels too high
 - Levels too low
 - Other factors
 - Stress
 - Infections
 - Changes in levels of blood and body fluids
- Hormone Diseases
 - When your body does not respond as it should to the presence of the hormone
- Most common endocrine disease
 - Diabetes

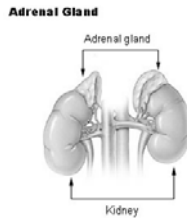
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Adrenal Gland Overview

- Adrenal gland (s)
 - also called the “suprarenal” gland
 - are located above your kidneys
 - are paired organs
 - composed of two layers
 - Outer cortex
 - Three Hormones
 - Inner medulla
 - Two Hormones



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Adrenal Gland Diseases

- Addison's Disease
 - Symptoms
 - Diagnostic Tests
 - Treatment

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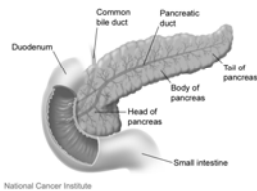
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Adrenal Gland Cancers

- Adrenal Gland Cancers
 - Adrenocortical carcinoma
 - Neuroblastoma
 - Pheochromocytoma

Pancreas – Islets of Langerhans

- Pancreas
 - Soft organ that lies transversely in front of the spine
 - Has both an exocrine and endocrine function
 - Pancreatic islets
 - alpha cells that secrete glucagons
 - beta cells that secrete insulin



Pancreatic Disorders

- Diabetes
 - Type 1
 - Type 2
- Symptoms
- Diagnostic Tests
- Treatments
 - Type 1
 - Insulin
 - Islet Cell Transplantation
 - Type 2
 - Exercise and weight control
 - Oral Medications

Pancreatic Diseases

- Pancreatitis
 - Definition
 - Symptoms
 - Diagnostic Tests
 - Treatment
 - Pancreas Transplant

Pancreatic Diseases

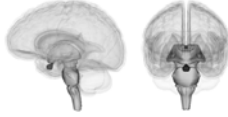
- Cystic fibrosis
 - Definition
 - Symptoms
 - Diagnostic Tests
 - Treatment

Pancreatic Cancer

- Location of tumors
 - exocrine cells
 - endocrine
- Risk Factors
- Symptoms
- Diagnostic Tests
- Treatment

Pituitary Gland Overview

- Pituitary Gland
 - Also known as the "hypophysis"
 - Located on the underside of the brain in a depression at the base of the skull
 - About the size of a pea or 1 centimeter in diameter
 - Connected to the brain by a slender stalk-like projection referred to as the "infundibulum"
 - Known as the "master gland"



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Pituitary Gland Hormones

- Hormones produced by the pituitary gland
 - Prolactin
 - Growth Hormone (GH)
 - Adrenocorticotropic (ACTH)
 - Thyroid-stimulating hormone (TSH)
 - Antidiuretic hormone (ADH)
 - Luteinizing hormone (LH)
 - Follicle-stimulating hormone (FSH)

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Pituitary Gland Disorders

- Growth Disorders
 - Growth Hormone (GH) in the pituitary gland stimulates the growth of bone and other tissues.
 - Too little GH results in dwarfism
 - A person of short stature, under 4'10", as an adult
 - Achondroplasia causes about 70% of all dwarfism
 - Too much GH results in gigantism
 - in children where their bones and their body grow too much
 - In adults it causes acromegaly, which makes the hands, feet and face larger than normal

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Pituitary Gland Disorders

- Diabetes Insipidus
 - Also called DI
 - Symptoms
 - causes frequent urination
 - Extremely thirsty
 - Different from diabetes mellitus (DM)
 - Less common than DM
 - Result of a problem with the pituitary gland or kidneys
 - Treatment depends on the cause of the disorder
 - Medications may be helpful

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Pituitary Gland Tumors

- Pituitary tumors are fairly common
 - 1 in 10,000 persons have a pituitary tumor
- Characteristics
 - Grow slowly
 - Do not spread
 - Usually not cancerous
- Most common tumors produce hormones and may result in conditions such as:
 - Cushing's syndrome
 - hyperthyroidism

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Pituitary Gland Diagnostic Tests

- Diagnostic Tests
 - Adrenocorticohormone Test
 - Aldosterone and Renin Tests
 - Follicle-stimulating Hormone Test
 - Growth Hormone Test
 - Insulin-like Growth Factor-1 Test
 - Lutenizing Hormone Test
 - MRI of the Head

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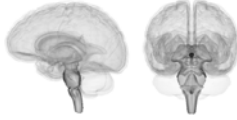
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Pineal Gland

- Pineal Gland
 - Also called the pineal body or epiphysis cerebri
 - Is a small cone-shaped structure attached to a portion of the brain (cerebrum) by a stalk



Pineal Gland

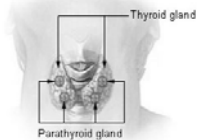
The Pineal gland consists of

- Neurons
- Neuroglial cells
- Pinealocytes, specialized secretory cells
 - Secrete the hormone melatonin into the cerebrospinal fluid, which carries it into the bloodstream
 - Melatonin affects reproductive development and daily physiologic cycles

Thyroid Gland Overview

- Located in the front of the neck on either side of the trachea
- Consists of two lobes
- Two lobes connected by a band of tissue called the "isthmus"

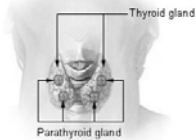
Thyroid and Parathyroid Glands



Thyroid Gland Overview

- Helps the body generate energy from the food we eat
- Parathyroid glands located on the thyroid gland and secrete parathyroid hormone

Thyroid and Parathyroid Glands



Thyroid Gland Overview

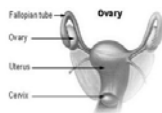
- Thyroid gland consists of follicles that produce chemicals or hormones that contain iodine
 - Thyroxine – 95%
 - Triiodothyronine – 5%
- Both thyroid hormones require the presence of iodine to be synthesized
- Thyroid hormone is also produced in response to another hormone released in the pituitary gland
- Simple goiter or iodine deficiency goiter

Thyroid Diseases

- Four main types of disease
 - Hyperthyroidism
 - Hypothyroidism
 - Benign (non-cancerous) thyroid disease
 - Thyroid cancer
 - Risk Factors
 - Symptoms
 - Treatments
 - Surgery, radioactive iodine, hormone treatment, radiation therapy or chemotherapy. Some patients receive a combination of treatments.

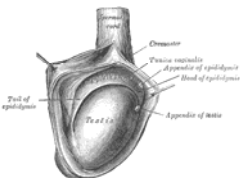
Reproductive Organs Endocrine Function Overview

- Ovary
 - Produces female sex hormones
 - Estrogen
 - Progesterone
 - Part of the female reproductive organs
 - Secondary sexual characteristics at puberty from estrogens include:
 - Development of breasts
 - Distribution of fat
 - Maturation of reproductive organs
 - Other hormone functions from progesterone include:
 - Uterine lining thickening



Reproductive Organs Endocrine Function Overview

- Testes
 - Male sex hormones
 - Called "androgens"
 - Testosterone is main hormone secreted by the testes and its production
 - Begins during fetal development
 - Responsible for
 - Growth and development of male reproductive structures
 - Increased skeletal and muscular growth
 - Enlargement of the larynx
 - Growth and distribution of body hair
 - Increased male sexual drive



Thymus Gland Overview

Thymus Gland

Location

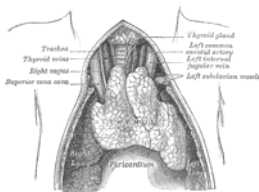
- small organ in your upper chest, under your breastbone

Function

- before birth and during childhood, the thymus helps the body make a type of white blood cell, lymphocytes, which help protect you from infection

Hormone

- produces thymosin, a hormone that plays an important role in the development of the body's immune system



Thymus Gland Overview

Diseases of the thymus

- Cancer of the thymus is rare
 - Symptoms include:
 - » A cough that doesn't go away
 - » Chest pain
 - » Trouble breathing
 - Treatment
 - The most common treatment is surgery to remove the tumor
 - Other options include radiation and hormone therapy

Endocrine System Combining Forms

Word Part	Meaning	Key Term
adrenal/o	adrenal gland	adrenalectomy
oophor/o	ovary	oophoritis
orchi/o	testis	orchitis
pancreat/o	pancreas	pancreatectomy
pituitar/o	pituitary gland	hypopituitarism
thym/o	thymus gland	thymoma
thyroid/o	thyroid gland	thyroidectomy
