NURS 821 Metabolic and Endocrine Disorders; Alterations in Reproduction

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Lecture 9

Part 1 Disorders of the Anterior Pituitary and Thyroid Glands

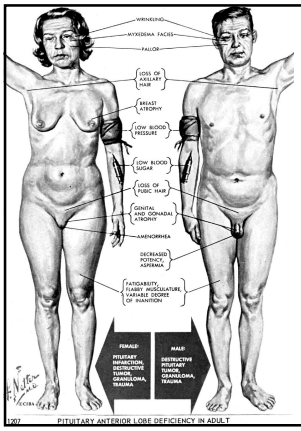
Pituitary Gland – Master Gland

- Anterior Lobe – adenohypophesis – endocrine system
  – secretes seven hormones – STH, ACTH, TSH, MSH, FSH, LH, LTH.

2. Posterior Lobe – neurohypophesis – nervous system

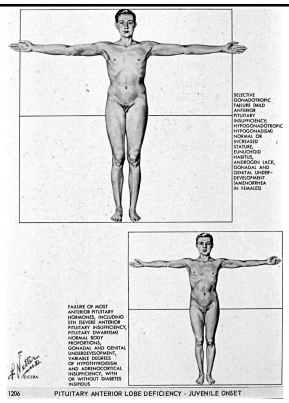
Disorders of Anterior Pituitary

- Hypopituitarism – undersecretion of hormones e.g. dwarfism, myxedema, 2° adrenocortical insufficiency.
- Hyperpituitarism – oversecretion of hormones e.g. gigantism, acromegally, cushings.

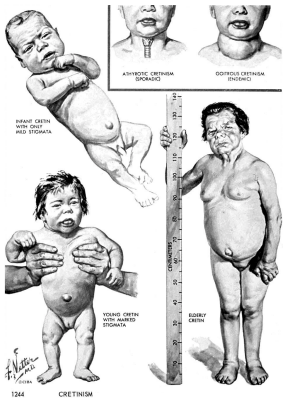


Anterior Pituitary Deficiency

- Deficiencies possible in all target glands- panhypopituitarism

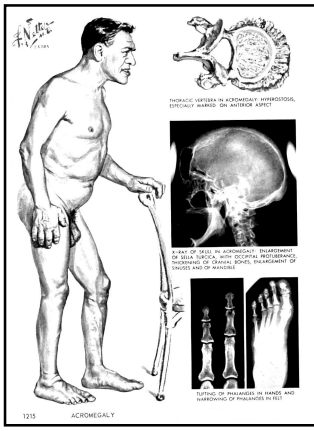


Anterior Pituitary Deficiency



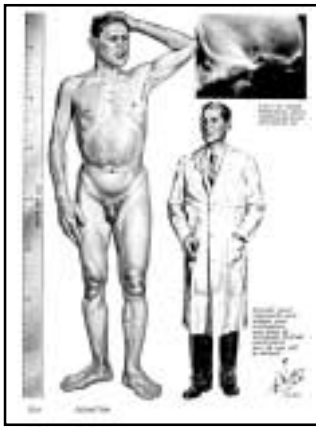
Dwarfism

- Hypopituitarism



Acro-megally

- Hyperpituitarism in adult



Gigantism

- Hyperpituitarism before growth has stopped
  - 7 foot tall basketball players?

Thyroid Gland

- TSH secreted by anterior pituitary stimulates thyroid to secrete thyroxine

Thyroxine:

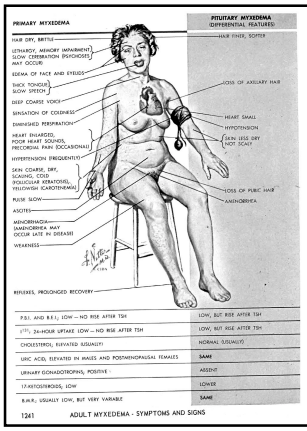
- One of three thyroid hormones (thyrocalcitonin, triiodothyronine)
- Mainly composed of iodine

Thyroxine (cont'd)

- Combines with protein and stored as thyroglobulin; released when serum levels decrease.
- Production depends on: increasing stress, cold and decreasing or increasing goitrogen diet, heat, drugs.
- Production also depends on production of protein, iodine, and release of TSH by pituitary.

Thyroxine con't

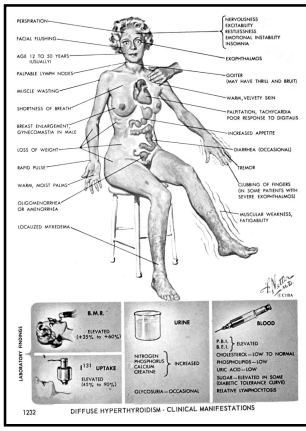
- Purpose:
  - Regulates body metabolism so O_2 consumption and heat production keep pace with body activities.
  - Aids in growth and development.
  - Aids in fat, protein, and cholesterol metabolism.
  - Aids in reproduction.



Hypo-thyroidism

- Decreased BMR
- Decreased bodily activities

- Primary
- Secondary



Hyper-thyroidism

- Increased BMR
- Increased bodily activities

- Primary
- Secondary

Exopthal-mic Goiter

- Hyperthyroidism
- Increased mucopolysaccharide

Table 33–1 Manifestations of Hypothyroid and Hyperthyroid State

Level of Organization	Hypostate	Hyperstate
Basal metabolic rate	decreased	increased
Sensitivity to catecholamines	decreased	increased
General features	myxedematous features deep voice impaired growth (child)	exophthalmos lid lag decreased blinking
Blood cholesterol levels	increased	decreased
General behavior	mental retardation (infant) mental and physical sluggishness somnolent	restless, irritable, anxious hyperkinetic wakeful
Cardiovascular function	decreased cardiac output bradycardia	increased cardiac output tachycardia and palpitations
Gastrointestinal function	constipation decreased appetite	diarrhea increased appetite
Respiratory function	hypoventilation	dyspnea
Muscle tone and reflexes	decreased	increased, with tremor and fibrillatory twitching
Temperature tolerance	cold intolerance	heat intolerance
Skin and hair	decreased sweating coarse and dry skin and hair	increased sweating thin and silky skin and hair
Weight	gain	loss