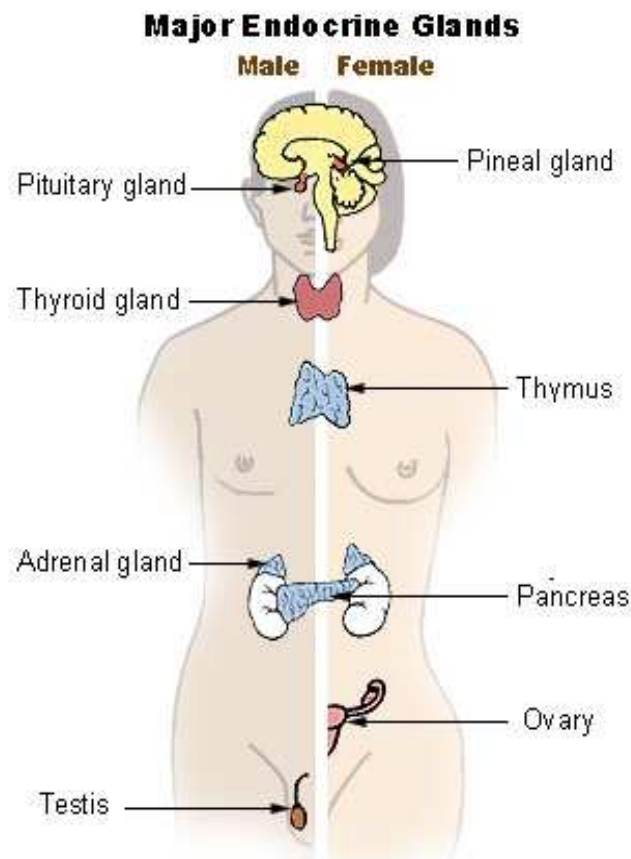


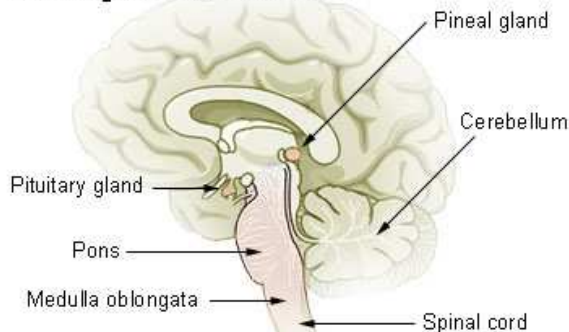
The Endocrine System



PITUITARY GLAND: “THE MASTER GLAND”

Controlled by the *HYPOTHALAMUS* in the brain.

Pituitary and Pineal Glands



Anterior: Secretes hormones controlling other glands

Posterior: **Oxytocin:** controls contractions of uterus during childbirth
Vasopressin: (A.K.A. ADH) controls the re-absorption of water by the nephrons of the kidneys.

The Endocrine System regulates:

1. Metabolism
2. Homeostasis
3. Growth
4. Reproduction

HOMEOSTASIS - The ability to keep the internal environment of your body constant despite changes in the external environment.

GLANDS - Organs that secrete hormones.

HORMONES - Chemical substances secreted into the blood that influence growth, development and behavior of other cells.

TWO (2) TYPES OF HORMONES:

1. Protein – Can't pass through membranes
Ex. Insulin
2. Steroid – Able to pass through membranes
Ex. Estrogen

Anterior Pituitary Hormones

Thyroid Stimulating Hormone (TSH): stimulates the production and release of thyroxine from the thyroid gland

Adrenocorticotropic Hormone (ACTH): stimulates the production & release of hormones from the cortex layer of the adrenal glands

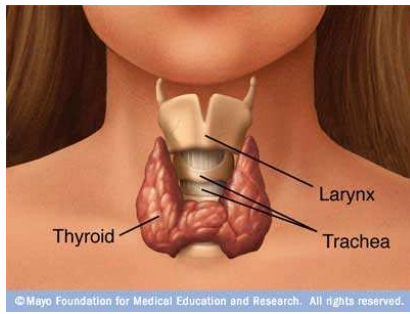
Growth Hormone (GH): controls growth

Follicle Stimulating Hormone (FSH): stimulates the development of egg cells in the ovaries in females; in males, it controls the production of sperm cells in testes

Lutenizing Hormone (LH): releases the egg cells from the ovaries in females

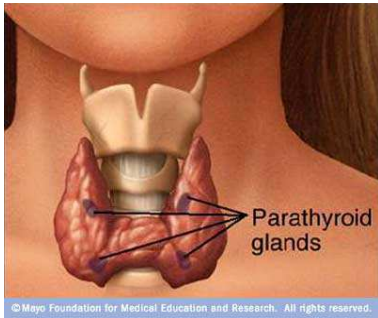
Prolactin: stimulates the secretion of milk by the mammary glands of the female after she gives birth

THYROID GLAND



Thyroxin: regulates the metabolism of protein, fats & carbohydrates and cellular respiration rates; contains iodine

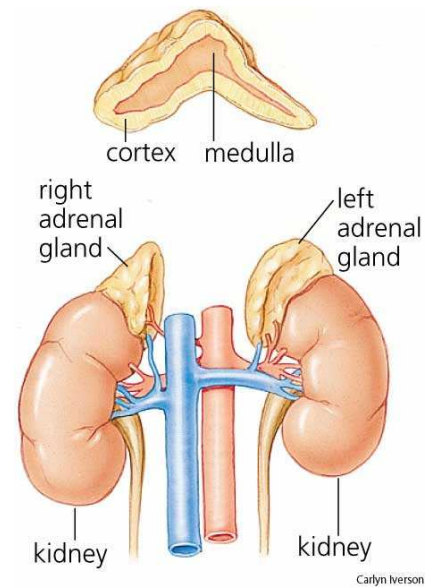
Calcitonin: regulates blood calcium levels



PARATHYROID GLANDS

Parathyroid: regulates the metabolism of calcium (growth, bones/teeth, clotting, nerve function & muscle contractions) and phosphate (bones, ATP, DNA & RNA)

ADRENAL GLANDS



Medulla (inner layer) deals with sudden stress

Norepinephrine & Epinephrine: (A.K.A Adrenalin)

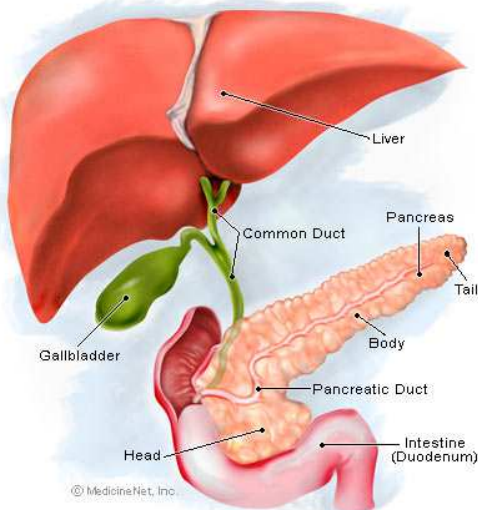
Secreted to produce our emergency fight-or-flight response during sudden stress such as fear, anger, pain or physical exertion

Cortex (outer layer) deals with chronic Stress

Cortisol (A.K.A. *Hydrocortisone*): regulates metabolism of carbohydrates, proteins & fats

Aldosterone: maintains normal blood mineral balance

PANCREAS

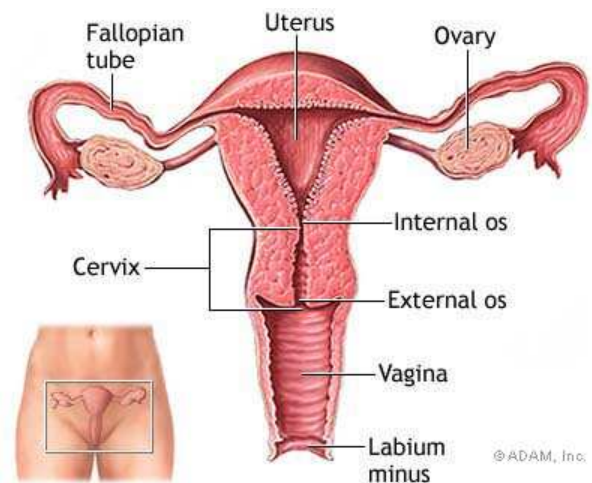


Glucagon & Insulin: control the metabolism of glucose.

Islets of Langerhans secrete glucagon and insulin.

When they fail, glucose can't leave the blood and enter the cells. As a result, the kidneys must excrete it in the urine = **DIABETES** = *death if untreated*

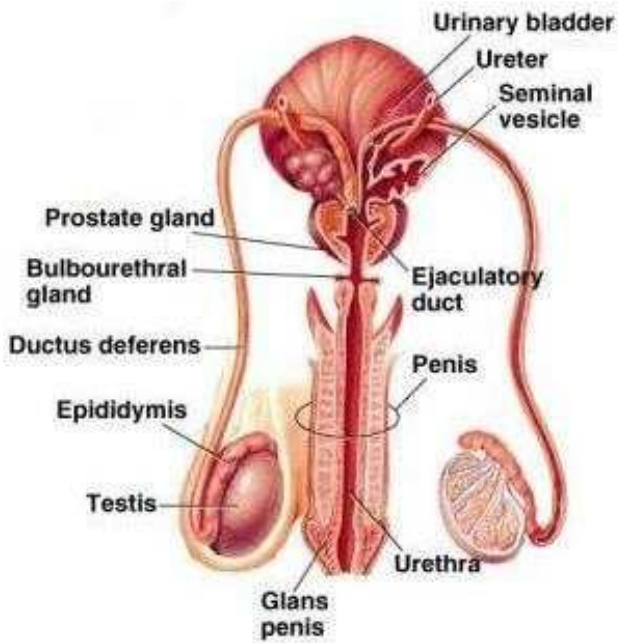
FEMALE GONADS: OVARIES "A.K.A. FEMALE SEX GLANDS"



Estrogen: stimulates the development of the female reproductive system; promotes the development of secondary sex characteristics such as broadening hips and development of breasts; regulates menstrual cycle

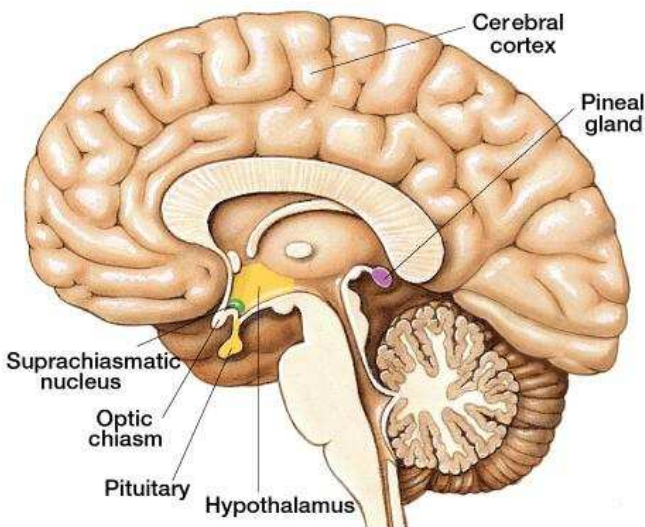
Progesterone: works with estrogen to regulate the menstrual cycle

MALE GONADS: TESTES “A.K.A. MALE SEX GLANDS”



Testosterone: stimulates the development of the male reproductive system; promotes the development of secondary sex characteristics such as deepening of the voice, beard, body hair and the male body form

THE PINEAL GLAND

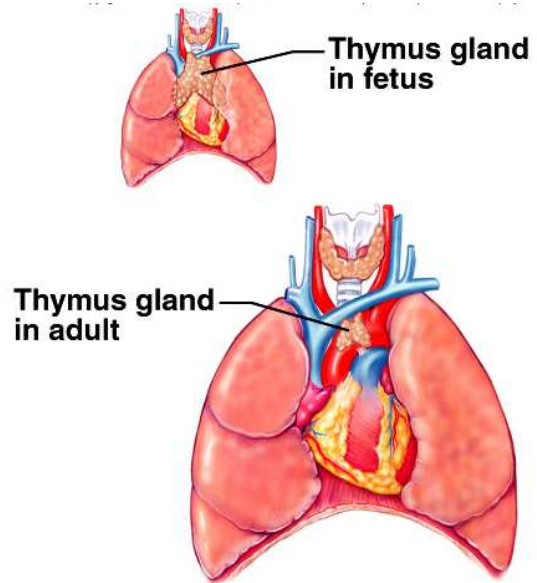


Melatonin: regulates the sleep/wake pattern; causing drowsiness & lowering body temperature; needed to trigger quality sleep patterns; may inhibit sexual development

THE THYMUS

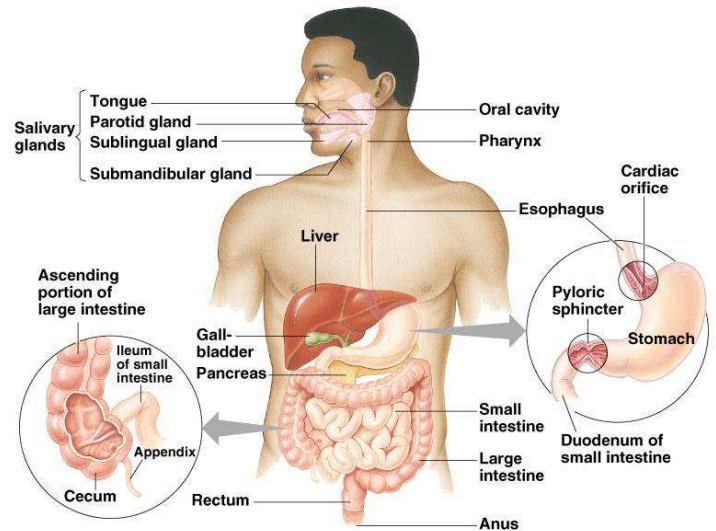
Thymosin: stimulates the development of T- lymphocytes which help defend the body against infection as children

It *APPEARS* not to serve any function in adults.



THE SALIVARY GLANDS

Saliva: stimulates the flow of saliva & the enzyme amylase to break down starches



THE STOMACH

Gastrin: stimulates the flow of gastric juices

THE SMALL INTESTINE

Secretin: stimulates the flow of pancreatic juices