

## The Endocrine System Required Hormones

Origin – Target Tissue - Function

C17 Study Guide (0723)

Growth Hormone - GH (synthesized and released by anterior pituitary gland // target cells all cells of body // stimulate growth, anabolic metabolism, mobilize nutrients for growth)

Adrenocorticotropic Hormone – ACTH (synthesized and released by anterior pituitary gland // target tissue adrenal cortex // cause release of mineralcorticoid (aldosterone = salt retention hormone) and glucocorticoid hormone (cortisol = anti-inflammatory hormone) /// aldosterone target tissue is kidney and cortisol targets all cells)

Thyroid Stimulating Hormone - TSH (synthesized and released by anterior pituitary gland // target tissue = thyroid gland // causes release of thyroxin also commonly known as the thyroid hormone // nicknamed the gas peddle of the human body // increases metabolism of all cells )

Antidiuretic Hormone - AD ( synthesized in hypothalamus and released by posterior pituitary gland // target tissue = kidney collection ducts // reduces urine volume which conserves water in the body)

Calcitonin (synthesized and released by “C” cells of the thyroid gland // target tissue blastocytes of skeletal system /// lowers blood calcium levels by stimulating blastocytes to make more bone)

Parathyroid Hormone - PH (synthesized and released by the parathyroid gland // primary target is skeletal system // stimulate osteocytes to break down bone to increase calcium concentration in the blood)

Insulin (synthesized and released by pancreas beta cells // high glucose levels in blood cause release of insulin // insulin affects most cell membranes to allow glucose to enter cells (brain, liver, and kidney are the only tissue that do not need insulin to move glucose into their cells) // as glucose moves into cells blood glucose concentration is reduced

Glucagon (synthesized and released by pancreas alpha cells // low glucose levels in blood causes release of glucagon // primary target is liver – glucagon breaks down liver's glycogen and glucose moves into the blood)

Aldosterone (synthesized and released by adrenal cortex - it is called a mineralcorticoid // nickname is the salt retention hormone // target tissue is kidney // recovers sodium from collecting ducts and as salt is recovered it drags water back into the body – has tendency to increase blood pressure)

Cortisol (synthesized and released by adrenal cortex – it is known as a glucocorticoid // targets most cells // stimulates formation of glucose from proteins // anti-inflammatory because it stops new protein synthesis including antibodies // causes lymph nodes to atrophy // shifts fat deposits to face and back shoulders

Estrogen (the principle female hormone – it is a steroid // primary source ovaries but after placenta forms the placenta produces hormone throughout pregnancy // affects many tissue including placental development, mammary gland development, fat distribution, shapes female morphology following puberty // up-regulate uterus for progesterone receptors)

Progesterone (principle female hormone – it is a steroid // primary source is corpus luteum of the ovary following ovulation – post day 14 in menstrual cycle // after placenta develops it to is a source of progesterone // required to maintain endometrium and the pregnancy

Follicle Stimulating Hormone - FSH – in female /// synthesized and released by anterior pituitary gland // target tissue primordial follicles in the ovaries // stimulate development of egg // these developing eggs then produce estrogen

Lutenizing Hormone - LH – in female /// synthesized and released by anterior pituitary gland // target tissue = maturing egg in ovary = Graffian follicle // day 14 surge initiates ovulation – release of egg into uterine tube and remaining cells of follicle stay on surface of ovary to form corpus luteum – these cells then produces progesterone which is required to maintain pregnancy

Follicle Stimulating Hormone - FSH – in males /// synthesized and released by anterior pituitary gland // target tissue male testes seminiferous tubules to produce androgen binding hormone // this protein required to concentrate testosterone inside seminiferous tubules so spermatogenesis may occur

Lutenizing Hormone - LH – in males /// synthesized and released by anterior pituitary gland // target tissue male testes interstitial cells which are between seminiferous tubules // causes interstitial cells to produce testosterone which then becomes concentrated within seminiferous tubules due to androgen binding hormone /// this then allows the formation of new sperm – spermatogenesis