Endocrine System –Hormones

Gland/hormone	Function	Dysfunction/Disorders	Chemical Composition
Anterior Pituitary			
Growth Hormone (GH) (somatotropism)	Stimulates the growth of all organs in the body, mobilizes food molecules increasing the blood glucose concentration	Hypersecretion results in **gigantism** and **acromegaly**	Protein
Melanocyte-stimulating hormone (MSH)	Stimulates synthesis and dispersion of the pigment melanin in the skin	Hyposecretion results in the darkening of the skin	Protein
Adrenocorticotrophic hormone (ACTH)	Stimulates secretion of adrenal cortex hormones	Hypersecretion or hyposecretion of adrenal cortex	Polypeptide
Follicle-stimulating hormone (FSH)	Males: Stimulates production and growth of sperm in seminiferous tubules of testes Female: Stimulates development of follicles in ovaries and secretion of estrogen	Hyposecretion inhibits sexual development and causes sterility	Glycoprotein
Luteinizing hormone (LH)	Males: stimulates secretion of testosterone by the interstitial cells of the testes Female: Stimulates the secretion of estrogen stimulates maturation of ovarian follicle and ovum, ,triggers ovulation, and stimulates the development of the corpus luteum or lutenization	Hyposecretion inhibits sexual development and causes sterility	Glycoprotein
Prolactin	Stimulates breast development during pregnancy and milk development after pregnancy	Hypersecretion causes inappropriate lactation in non-nursing women and in men. Hyposecretion causes insufficient lactation in nursing women	Protein
Posterior Pituitary (synthesized in Hypothalamus but released in posterior pituitary)			
Antidiuretic hormone (ADH)	Stimulates water retention by the kidneys	Hypersecretion results in abnormal water retention Hyposecretion causes diabetes insipidus	Peptide
Oxyotocin	Stimulates uterine contractions at the end of pregnancy and the release of milk into the ducts of the breast	Hypersecretion causes inappropriate ejection of milk in lactating women Hyposecretion may cause prolonged or difficult labor and delivery	Peptide

Hypothalamus (Releasing hormones)	Stimulates anterior pituitary to release hormones	Hypersecretion causes hypersecretion by anterior pituitary Hyposecretion causes hyposecretion by pituitary	Protein
Thyroid			
Thyroxine (T_4) and thiiodothyronine (T_3)	Stimulates energy metabolic activities of cells	Hypersecretion causes hyperthyroidism, Graves disease Hypersecretion causes hypothyroidism, (pre-adult) cretinism, (adult) myxedema, goiter	Iodinated protein
Calcitonin	Inhibits breakdown of bone and causes decreases in blood calcium concentrations	Hypersecretion can cause hypocalcemia Hyposecretion can cause hypercalcemia	Polypeptide
Parathyroid			
Parathyroid hormone (PTH)	Stimulates the breakdown of bone and causes increase in blood calcium concentrations	Hypersecretion can cause hypercalcemia Hyposecretion can cause hypocalcemia	Polypeptide
Adrenal Cortex			
Mineralocorticoids aldosterone	Regulate electrolyte and fluid homeostasis or balance	Hypersecretion causes increased water retention Hyposecretion causes abnormal water loss or dehydration	Steroid
Cortisol (hydrocortisone)and other glucocorticoids	Stimulates gluconeogenesis, causing an increase in blood glucose concentrations and has anti-inflammatory, anti-immunity, and anti-allergy effects	Hypersecretion causes Cushing's Syndrome Hyposecretion causes Addison's disease	Steroid
Sex hormones (androgens)	Stimulate sexual drive in females but have little effects in males	Hypersecretion causes premature sexual development in females and masculinization of females Hyposecretion has no significant effect	Steroids
Adrenal Medulla			
Epinephrine (adrenalin) and norepinephrine	Intensifies and prolongs the sympathetic response during stress	Hypersecretion causes effects of stress Hyposecretion has no significant effect	Catecholamines (amino acid derivatives)
Pancreatic Islets			
Glucagon	Stimulates glycogenolysis causing an increase in blood glucose concentration	Uncertain	Polypeptides

Insulin	Promotes glucose entry into cells causing decrease in blood glucose concentration	Hypersecretion causes severe insulin shock or hypoglycemia Hyposecretion causes diabetes mellitus	Polypeptides
Ovary			
Estrogen	Promotes development and maintenance of female sexual characteristics	Hypersecretion causes premature sexual development in females and infertility Hyposecretion causes lack of female sexual development, infertility and osteoporosis	Steroids
Progesterone	Promotes conditions needed for pregnancy	Hyposecretion causes sterility	Steroids
Testis			
Testosterone	Promotes development and maintenance of male sexual characteristics	Hypersecretion causes premature male sexual development and muscle hypertrophy Hyposecretion causes lack of sexual development in males	Steroids
Thymus			
Thymosin	Promotes development of immune system cells	Hyposecretion depresses immune system	Protein
Placenta			
Chorionic gonadotropin, estrogens, progesterone	Promotes conditions required during early pregnancy	Hyposecretion causes miscarriage or spontaneous abortion	Steroids
Pineal			
Melonin	Inhibits tropic hormones which affect the ovaries and may involve the internal clock of the body	Hypersecretion causes winter depression and other possible effects	Catecholamine
Heart (atria of heart)			
Atrial natriuretic	Regulates fluid and electrolyte balance or homeostasis	(uncertain)	Peptide