

Table 14-3 Physiological Functions of Hormones

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Function Under Hormonal Control	Hormone	Source (Endocrine Tissue)
Growth and Development		
Body size	Somatotropin (growth hormone)	Anterior pituitary
Sexual development	Androgens (males)	Testes
	Estrogens (females)	Ovaries
Reproductive cycle	Luteinizing hormone	Anterior pituitary
	Follicle-stimulating hormone	Anterior pituitary
	Chorionic gonadotropin	Follicle
Rates of Body Processes		
Hormone secretion	Tropic hormones	Anterior pituitary
Basal metabolism	Thyroxine	Thyroid
Glucose uptake	Insulin	Pancreas
Kidney filtration	Antidiuretic hormone (vasopressin)	Posterior pituitary
Uterine contraction	Oxytocin	Posterior pituitary
Concentrations of Substances		
Blood glucose	Glucagon, insulin	Pancreas
Mineral balance	Corticosteroids	Adrenal cortex
Blood calcium	Parathyroid hormone	Parathyroid
Responses to Stress and Injury		
Heart rate	Epinephrine	Adrenal medulla
Blood pressure	Epinephrine	Adrenal medulla
Inflammation	Histamine	Mast cells
	Prostaglandins	All tissues
	Corticosteroids (cortisol)	Adrenal cortex

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Table 14-4 Chemical Classification and Function of Hormones

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Chemical Classification	Examples	Regulated Function
Endocrine Hormones		
Amino acid derivatives	Epinephrine (adrenaline) and norepinephrine (both derived from tyrosine)	Stress responses: Regulation of heart rate and blood pressure; release of glucose and fatty acids from storage sites
Peptides	Thyroxine (derived from tyrosine)	Regulation of metabolic rate
	Antidiuretic hormone (vasopressin)	Regulation of body water and blood pressure
	Hypothalamic hormones (releasing factors)	Regulation of tropic hormone release from pituitary gland
Proteins	Anterior pituitary hormones	Regulation of other endocrine systems
Steroids	Sex hormones (androgens and estrogens)	Development and control of reproductive capacity
	Corticosteroids	Stress responses; control of blood electrolytes
Paracrine Hormones		
Amino acid derivative	Histamine	Local responses to stress and injury
Arachidonic acid derivatives	Prostaglandins	Local responses to stress and injury

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