

Lecture course in Physiology, second semester

Lecture № 20. Introduction to endocrinology – chemical structure, synthesis, secretion, transport and mechanism of action of hormones. Pituitary hormones and their control by the hypothalamus. Thyroid metabolic hormones

Theses: The common characteristic of the endocrine system. Classification of hormones. The synthesis of hormones. General principles of hormonal regulation. Chemistry of hormones. Storage and secretion of hormones. Mechanisms of hormonal action. Function of the anterior pituitary gland. Control of pituitary secretion by the hypothalamus. Physiological functions of growth hormone. The posterior pituitary gland and its relation to the hypothalamus. Physiological function of antidiuretic hormone and oxytocin. The thyroid gland. Synthesis and Secretion of the Thyroid Metabolic Hormones. Release of Thyroxine and Triiodothyronine from the Thyroid Gland. Functions of the thyroid metabolic hormones. Regulation of thyroid hormone secretion. Diseases of the Thyroid.

Lecture № 21. Insulin, glucagon and diabetes mellitus. Parathyroid hormone, calcitonin, vitamin D and calcium-phosphate metabolism

Theses: Endocrine function of the pancreas. Insulin and its metabolic effects. Glucagon and its functions. Regulation of the blood glucose concentration. Diabetes Mellitus. Parathyroid hormone, calcitonin, vitamin D, and calcium-phosphate metabolism

Lecture № 22. Adrenocortical hormones. Reproductive and hormonal functions of the male

Theses: The adrenal glands. Functions of the mineralocorticoids, of the glucocorticoids and adrenal androgens. Abnormalities of adrenocortical secretion. Physiologic anatomy of the male sexual organs. Spermatogenesis. Reproductive and hormonal function of the male. Male sexual act. Functions of testosterone. Functions of testosterone during fetal development . Control of male sexual functions by hypothalamus and anterior pituitary gland. Effect of testosterone on development of adult primary and secondary sexual characteristics.

Lecture № 23. Female physiology before pregnancy and female hormones. Pregnancy and lactation.

Theses: Physiologic anatomy of the female sexual organs. Female hormonal system. Monthly ovarian cycle; function of the gonadotropic hormones. Functions of the ovarian

hormones — estradiol and progesterone. Chemistry and functions of progesterone sex hormone. Functions of the estrogens — their effects on the primary and secondary female sex characteristics. Monthly endometrial cycle and menstruation. Regulation of the female monthly rhythm — interplay between the ovarian and hypothalamic-pituitary hormones. Abnormalities of secretion by the ovaries. Puberty. Menopause. Pregnancy, childbirth, lactation.