Federal State Autonomic Educational Institution of Higher Education
«Peoples' Friendship University of Russia»

Medical Institute

Recommended MCSD

SYLLABUS
(STUDY GUIDE)

Subject

Endocrinology

Recommended for the direction of training (specialty)

31.05.01 General Medicine

Program (profile, specialization)

General Medicine

1. **Goals and objectives of the discipline:**

Obtaining basic theoretical knowledge in the fundamental sections of endocrinology and practical skills in the examination of patients with endocrine diseases, primary diagnosis, treatment and clinical examination of patients.

To do this, during the preparation for the cycle, the following tasks must be solved:

1)Students should learn to receive information about the disease, identify risk factors for the development of major endocrine diseases, apply objective methods of patient examination (assess the condition of the skin, the nature of the distribution of subcutaneous fat and body type, determine the vibration, temperature and tactile sensitivity of the feet of patients with diabetes mellitus). General and specific signs of the disease (to identify changes in appearance characteristic of a particular endocrine pathology) or its complications;

2) Students should learn to objectively assess the severity of the patient's condition, diagnose acute (hyperglycemic, hypoglycemic, lactacidemic and hyperosmolar coma in diabetes mellitus, thyrotoxic and catecholamine crisis, hypothyroid coma, acute adrenal insufficiency, hypokalemia, hypernatremia, and hypernatremia, and hypernatremia) in case of emergency conditions;

3)Students should learn how to properly plan the examination of patients with various endocrine diseases, correctly interpret the data of X-ray of the skull, sighting images of the Turkish saddle, data of computed and magnetic resonance imaging of the pituitary gland and adrenal glands, results of ophthalmoscopy, results of puncture biopsy of the thyroid gland, ultrasonography and thyroid scintigraphy glands and adrenal glands, calculate the body mass index, the percentage of body fat, determine the circumference of the waist and hips with the interpretation of the results obtained, determine the vibration, temperature and tactile sensitivity of the feet of patients with diabetes mellitus, be able to palpate the thyroid gland;

4) Students should learn how to develop a plan of patient management, know the main methods of drug therapy and the procedure for their appointment;

5) Students should learn to diagnose and carry out the necessary treatment for the following diseases: diabetes mellitus and other diseases of the endocrine apparatus of the pancreas, thyroid diseases, diseases of the hypothalamic-pituitary system, hormonally active and hormonally inactive tumors of the adrenal glands, thyroid and parathyroid glands, obesity.

6) Based on the data obtained, diagnose the main syndromes, determine the list of diseases in which these syndromes occur and carry out a differential diagnosis, conduct and evaluate tests of functional tests used for the diagnosis and differential diagnosis of endocrine diseases (tests with dexamethasone and metapirone for hypercortisolism, tests with insulin and glucagon for patients with somatotropins, tests with chorionic gonadotropin and methapyrone for panhypopituitarism, tests with histamine and tropafen for pheochromocytoma, dry eating test for diabetes insipidus);

7) To be able to correctly draw up milestone and discharge epicrisis. To be able to solve deontological problems related to the collection of information about the patient and the diagnosis of symptoms and syndromes.

8) To be able to independently work with educational, scientific, normative and reference literature - to conduct a search, turn what you read into a tool for solving problems.

2. The place of discipline in the structure of OOP: Discipline Endocrinology refers to the basic part of block 1 of the curriculum.

Table 1 shows the previous and subsequent disciplines aimed at the formation of discipline competencies in accordance with the competence matrix of EP HE.

Table 1 **Prior and subsequent disciplines aimed at the formation of competencies**

№ п/п	Code and name of competence	Preceding disciplines	Subsequent disciplines

Universal competences			
1.	UC-1	Philosophy, Psychology and Pedagogy, Physics, Mathematics, Biochemistry, Anatomy, Immunology, Pathophysiology, Clinical Pathophysiology, Hygiene, Propedeutics of Internal Diseases, Public Health and Health Care, Health Economics, Epidemiology, Neurology, Medical Genetics, Neurosurgery, Disaster Medicine, Faculty Therapy.	Endocrinology, Infectious diseases, phthisiology, Medical elementology, Allergology
General professional competencies			
2.	GPC-4	Radiation diagnostics, General surgery, Medical rehabilitation, Neurology, medical genetics, neurosurgery, Faculty surgery, Urology.	Oncology, radiation therapy Traumatology, orthopedics Endoscopic urology
Professional competence (Doctor-general practitioner (district therapist)			
3.	PC-1, PC-2, PC-3	Life safety, Immunology, Pathophysiology, clinical pathophysiology, Propedeutics of internal diseases, Radiation diagnostics, General surgery, Topographic anatomy and operative surgery, Dermatovenereology, Neurology, medical genetics, neurosurgery Psychiatry, medical psychology, Otorhinolaryngology, Ophthalmology, Disaster Medicine, Faculty Therapy, Faculty surgery, Urology. Neurology, medical genetics, neurosurgery, Psychiatry, medical psychology, Otorhinolaryngology, Ophthalmology, Disaster medicine, Faculty therapy, Faculty surgery, Urology.	Polyclinic therapy, Anesthesiology, resuscitation, intensive care, Hospital surgery, pediatric surgery, Dentistry, Oncology, radiation therapy, Traumatology, Orthopedics, Pediatrics, Maxillofacial Surgery, Sectional course, Biotechnology, Medical elementology, Allergology.

3. Requirements for the results of mastering the discipline: The process of studying the discipline is aimed at the formation of the following competencies:

Table No. 2

Universal Competence Category	Universal Competence Code and Name	Universal Competence Achievement Indicator Code and Name

Systems and critical thinking	UC-1. Being able to implement critical analysis of problem situations based on systems approach, develop an action strategy	UC-1.1. Analysing scientific and technical literature and regulatory documents of medical institutions. UC-1.2. Assessing in a critical way the reliability of information sources, working with contradictory information from different sources. UC-1.3. Understanding the trends, strategic goals, problems in the field of healthcare/ being aware of regulatory framework to develop a strategy. UC-1.4. Analysing and assessing the economic potential, financial viability and risks of an organization.

General Professional Competence Category	General Professional Competence Code and Name	General Professional Competence Achievement Indicator Code and Name
Instrumental diagnosic methods of examination	GPC-4. Being able to use medical devices provided for by the procedure for medical care, and conduct patient examinations in order to determine a diagnosis	GPC-4.1. Being able to use medical devices in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care, care taking into account the medical care standards. GPC-4.2. Being able to assess the effectiveness and safety of medical devices. GPC-4.3. Mastering the technique of performing typical medical procedures using medical devices provided for by the procedures for medical care provision.

Professional Competence Code and Name	Professional Competence Achievement Indicator Code and Name
PC-1. Being able to provide emergency or urgent medical care to a patient	PC-1.1. Being able to assess the condition of a patient who needs emergency or urgent medical care. PC-1.2. Being able to recognize conditions that arise from sudden acute diseases, exacerbation of chronic diseases without obvious signs of a threat to the patient's life and which require emergency medical care. PC-1.3. Being able to provide emergency medical care to patients with sudden acute diseases, conditions, exacerbation of chronic diseases without obvious signs of a threat to the patient's life. PC-1.4. Being able to recognize conditions which pose a threat to the patient's life, including conditions of clinical death (cessation of the vital bodily functions (blood circulation and/or respiration) which require emergency medical care. PC-1.5. Being able to provide emergency medical care to patients in conditions which pose a threat to the patient's life, including clinical death (cessation of the vital bodily functions (blood circulation and/or respiration). PC-1.6. Being able to use drugs and medical devices when providing medical care in emergency or urgent forms.

PC-2. Being able to examine a patient in order to determine a diagnosis	PC-2.1. Mastering the skills to collect complaints, anamnesis of the patient's life and disease, as well as conduct a complete physical examination of the patient (examination, palpation, percussion, auscultation). PC-2.2. Being able to make a preliminary diagnosis and make up a plan of laboratory and instrumental examinations of a patient. PC-2.3. Being able to refer a patient to a laboratory examination in case there are medical indications in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the medical care standards. PC-2.4. Being able to refer a patient to an instrumental examination in case there are medical indications in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care. PC-2.5. Being able to refer a patient to consult with a medical specialist if there is a medical indication in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care. PC-2.6. Being able to refer a patient to be provided with specialized medical care in an inpatient setting or in a day hospital in case there are medical indications in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care. PC-2.7. Being able to carry out differential diagnosis with other diseases/conditions, including the urgent ones, as well as to make a diagnosis taking into account the current international statistical classification of diseases and problems related to health (ICD).
PC-3. Being able to prescribe treatment and monitor its efficacy and safety	PC-3.1. Being able to develop a treatment plan for a disease or condition taking into account the diagnosis, age and clinical picture in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care. PC-3.2. Being able to prescribe medicinal drugs, medical devices and medical nutrition taking into account the diagnosis, age and clinical picture of the disease and in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care. PC-3.3. Being able to prescribe non-drug treatment taking into account the diagnosis, age and clinical picture of the disease in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care. PC-3.4. Being able to assess the efficacy and safety of the use of drugs, medical devices, medical nutrition and other treatment methods. PC-3.5. Being able to provide palliative care in collaboration with medical specialists and other healthcare professionals. PC-3.6. Being able to organize personalized treatment for a patient, including pregnant women, elderly and senile patients; assess the efficacy and safety of treatment.

• The main goal of the course for students is to acquire knowledge on etiology, pathogenesis, clinical picture, diagnosis and treatment of the most common diseases of the endocrine system.
• The course is based on practical exercises in endocrinology.
• To successfully complete the course, the student needs to know: ¬ anatomy, physiology and pathophysiology of the endocrine system, ¬ basics of metabolism and hormonal regulation, mechanisms of biosynthesis and decay of hormones and biologically active substances, ¬ main points of application and mechanism of action of hormones; ¬ possess the skills of anamnestic and physical examination of the patient, ¬ interpretation of data from laboratory and instrumental research methods, ¬ knowledge about the main groups of drugs, their mechanisms of action and prescription rules.
• The course program is built in accordance with the requirements of the State Educational Standard for the specialty No. 040127 "Endocrinology" (Moscow, GOU VUNMTs, 2003).
• There are several blocks in the course: diabetology, thyroidology, pathology of the hypothalamic-pituitary system and pathology of the adrenal glands.
• The course has a practical part in the form of 6 lessons. • The training technology is focused on the development of medical thinking skills.
• Assessment of knowledge and skills of students is carried out using intermediate and final certification

As a result of studying the discipline, the student must: Know:

• Classification of hormones, regulation of their secretion (feedback principle, principle of autonomy, circadian rhythms, regulation of endocrine functions by the brain).
• Basic patterns of occurrence and development of diseases of the endocrine system.
• Mechanisms and principles of diagnostics of endocrine diseases and metabolic disorders. • Determination of the type and severity of diabetes mellitus.
• Classification, clinical and laboratory diagnosis of diabetes mellitus.
• Basic principles of diet therapy and drug therapy for diabetes mellitus.
• Pathogenesis, clinical manifestations and main classifications of vascular and neurological complications of diabetes mellitus.
• Pathogenetic mechanisms, diagnostic methods and procedure for removing patients with diabetes mellitus from ketoacidotic, hypoglycemic, hyperlactacidemic and hyperosmolar coma.
• Classification of diseases and functional disorders in the pathology of the thyroid gland.

Be able to:

• Organize anamnestic and physical examination of a patient with endocrine pathology.
• Work with medical records.
• Draw up a medical history, including "endocrinological status";
• Keep a diary of supervision of an endocrinological patient;
• Formulate a detailed clinical diagnosis of endocrine disease.
• Diagnose the main types of metabolic disorders.
• Assess the quality of glycemic control, violations of lipid and protein metabolism;
• Assess the effectiveness of the therapy.
• Identify violations of temperature (Tip-Term), vibration (tuning fork), pain, tactile (monofilament), sensitivity.
• Prescribe drug and non-drug therapy to patients with an endocrinological profile.
• Determine indications and contraindications for surgical treatment of patients with diabetic foot syndrome, thyroid diseases, adrenal and pituitary tumors.
• Arrange emergency procedures for emergencies.
• Assign a plan of examination for pathology of the thyroid gland, adrenal glands, hypothalamic-pituitary system, obesity and climacteric disorders.

• Substantiate the diagnosis and predict the course of endocrine disease on the example of supervised patients.
• formulate indications for the chosen method of treatment, taking into account etiotropic and pathogenetic agents, substantiate pharmacotherapy in a particular patient with major pathological syndromes and emergency conditions, determine the route of administration, regimen and dose of drugs, assess the effectiveness and safety of the treatment;
• outline the volume of additional studies in accordance with the prognosis of the disease, to clarify the diagnosis and obtain a reliable result;
• use the methods of primary and secondary prevention (based on evidence-based medicine) in treatment activities, establish cause-and-effect relationships of changes in health status from the impact of environmental factors;
• fill out a medical history, write a prescription.
Have skills: • Conducting a "School for Patients with Diabetes Mellitus" for patients.

4. Scope of discipline and types of educational work

The total workload of the discipline is 72 hours. (2 cr.)

Type of study work	Total hours	Semesters			
		9	10	11	12
Classroom lessons (total)	**48**			48	
Including:	-			-	
Lectures					
Practical exercises (PE)	48			48	
Seminars (S)					
Laboratory work (LW)					
Independent work of students (academic hours)	**24**			24	
Total labor intensity (academic hours)	**72**			72	
Total labor intensity (credit units)	**2**			2	

5. Content of discipline

№ п/п	The name of the discipline section	Section Contents
1	Diabetes mellitus (DM)	Topic 1: Diabetes mellitus (DM), uncomplicated course. Classification, primary diagnosis and metabolic control. Hypoglycemic and antihyperglycemic therapy. Insulin therapy. Emergencies
		Topic 2: 2: Emergency conditions in patients with diabetes mellitus. T
		Topic 3: Late complications of diabetes mellitus: diabetic microangiopathies.
		Topic 4: Late complications of diabetes mellitus: diabetic macroangiopathies. Diabetic polyneuropathy.

2.	General endocrinology	Topic 5: Diseases of the thyroid gland. Endemic and sporadic goiter. Diffuse toxic goiter.
		Topic 6: Inflammatory diseases of the thyroid gland. Hypothyroidism Diseases of the parathyroid glands.
		Topic 7: Diseases of the hypothalamic-pituitary system. Obesity.
		Topic 8: Diseases of the adrenal glands.

5.2. Sections of discipline and types of classes

№№	Name of section					**SRS**	**Total**
		Lectures	Pract. busy	Lab.busy.	Semin		
1	**Diabetes Mellitus**		**24**			**12**	**36**
2	**General Endocrinology**		**24**			**12**	**36**

7. Practical exercises (seminars) No. of discipline section Topic of practical classes (seminars) Labor capacity (hour.)

№ п/п	№ of discipline section	Topic of practical classes (seminars)	Labor capacity (hours.)
1.	Diabetes Mellitus.	Etiology, pathogenesis, clinic. Determination of the type and severity of diabetes mellitus. Classification. Basic diagnostic methods. Treatment principles. Insulin therapy. Tableted antihyperglycemic drugs. Compensation and decompensation of diabetes mellitus. Stable flow of type 1 diabetes.	8
		Late complications of diabetes. Retinopathy. Nephropathy. Diabetic neuropathy (peripheral poly- and mononeuropathy, autonomic, diabetic encephalopathy). Diabetic angiopathy. Diabetic foot syndrome. Features of the course of hypertension and ischemic heart disease in patients with diabetes. Gestational diabetes.	8
		Acute complications of diabetes: differential diagnosis and tactics of elimination from ketoacidotic, hyperosmolar, lactacidemic and hypoglycemic coma.	8
2	Diseases of the hypothalamic-pituitary system.	Diseases of the hypothalamic-pituitary system. Itsenko-Cushing's disease. Etiology, classification, clinic. Laboratory data. Radiation diagnostics. Instrumental diagnostic methods. Stimulation and suppression tests. Dif. diagnosis of Itsenko-Cushing's syndrome disease. ACTH - ectopic syndrome (with bronchogenic cancer, etc.). Steroidal cushingoid. Treatment of Itsenko-Cushing's disease. Acromegaly. Etiology, clinic, laboratory tests, radiation diagnostics. Diabetes insipidus. Obesity	6

	Diseases of the thyroid gland. Diffuse toxic goiter (Graves 'disease, Graves' disease).	Diseases of the thyroid gland. Classification. Methods of examination of patients with thyroid pathology. Goiter is endemic and sporadic. Goiter classification. Diffuse toxic goiter. Etiology, pathogenesis, classification by severity, clinical picture. Diagnosis. Determination of the level of T3, T4, TSH, radioisotope studies, scanning of the thyroid gland, ultrasound of the thyroid gland. Differential diagnosis with TSH - producing adenoma of the pituitary gland, neurocirculatory dystonia, rheumatic heart disease, rheumatic heart disease, atherosclerotic cardiosclerosis, tuberculosis, toxic adenoma, the phenomenon of "bazed iodine". Thyrotoxic crisis. Treatment with thyrotoxic drugs. Endocrine ophthalmopathy. Thyrotoxic heart.	5
	Hypothyroidism primary, secondary, tertiary.	Primary, secondary, tertiary hypothyroidism. Clinic, laboratory diagnostics, determination of hormone levels. Differential diagnosis. Hypothyroid coma. Treatment. Acute purulent and non-purulent thyroiditis. Subacute thyroiditis (de Quervain). Chronic fibrous thyroiditis (Riedel's goiter). Differential diagnosis. Treatment. Autoimmune thyroiditis. Etiology, clinic, diagnosis, laboratory diagnostics. Puncture fine needle biopsy. Ultrasound of the thyroid gland, radiation diagnostics, differential diagnosis. Treatment. Hyper- and hypoparathyroidism.	5
	Diseases of the adrenal glands	Diseases of the adrenal glands. Primary hypocorticism. Etiology, clinic, determination of the content of corticosteroids in the blood. Test with ACTH. Differential with hemochromatosis, porphyria, poisoning with salts of heavy metals. Treatment: drug therapy, radiation and surgery. Acute adrenal cortex insufficiency. Clinic, determination of cortisol in the blood. Differential diagnosis with food poisoning, myocardial infarction, stroke. Treatment. Primary hyperaldosteronism (Cohn's syndrome). Etiology. Clinic. Symptoms Diagnosis. Diagnostic tests. CT, MRI, adrenal scan. Differential diagnosis with secondary aldosteronism, hypertension, diabetes insipidus. Treatment. Pheochromocytoma. Etiology. Paraganglioma. Clinic. Crisis with pheochromocytoma. Determination of catecholamines in blood and urine, vanillyl mandelic acid in urine. Stimulation and suppression tests. Ultrasound, CT, MRI, adrenal scan. Treatment. Differential diagnosis.	6
	Diseases of the parathyroid glands.	Disorders of calcium metabolism (hyper- and hypoparathyroidism). Hyper- and hypocalcemic crisis	2

8. Material and technical support of the discipline:

1. Ultrasonic portable scanner "ANGIODIN-SONO / P";
2. Bioimpedance analyzer of body composition ABC-02 "MEDASS";

3. Portable glucometers with test strips (Satellite Express) - 10 pcs;
4. Diagnostic tuning fork; type-term;
5. Monofilament;
6. Negatoscope of general purpose "Armed" version: 1-frame;
7. Medical scales;
8. Stadiometer metal medical;
9. Tonometers complete with phonendoscopes;
10. Epson EV-HOZ multimedia projector;
11. HP laptop; 12. Educational tables with chairs.

9. Information support of the discipline:

a) software _____ "Microsoft Office 2007 Home and Student"
b) resources of the information and telecommunication network "Internet":
1. EBS of RUDN University and third-party EBS to which university students have access on the basis of concluded agreements: - Electronic library system RUDN - EBS RUDN http://lib.rudn.ru/MegaPro/Web - EBS "University Library Online" http://www.biblioclub.ru - EBS Yurayt http://www.biblio-online.ru - EBS "Student Consultant" www.studentlibrary.ru - EBS "Doe" http://e.lanbook.com/
2. Databases and search engines: - electronic fund of legal and normative-technical documentation http://docs.cntd.ru/ - Yandex search engine https://www.yandex.ru/ - Google search engine https://www.google.ru/ - SCOPUS abstract database http://www.elsevierscience.ru/products/scopus/ - WHO Documentation Center http://whodc.mednet.ru/ - electronic library on surgery http://surgerylib.ru/ c) databases, reference and search systems_ http://www.endocrincentr.ru/endocrin_internet/ - Official site of the Endocrinological Research Center of the Ministry of Health of the SR - http://www.idf.org/global-guideline-type-2-diabetes-2012 - Website of the International Diabetes Federation (IDF) Problem sites - http://thyronet.rusmedserv.com/ http://www.thyroid.ru/ http://www.diabet-news.ru/ http://www.rlsnet.ru/ http: // www.diabet.ru/ www. cardiosite.ru, www. gastrosite.ru, www. pulmonology.ru, www. rheumatolog.ru, www. endocrinolog.ru, http://dbkgroup.org/dave_files/AnalystMetabolicFingerprinting2006. National guidelines for cardiology - 2008, nephrology - 2009, gastroenterology - 2008, endocrinology - 2009, enteral and parenteral nutrition - 2015.

10. Educational-methodical and informational support of the discipline:

The main

1. Gardner D., Shobek D. Basic and clinical endocrinology. Book 1 / Per. from English - M .: Publishing house BINOM, 2016. - 464 pages (David G. Gardner, Dolores Shoback. Greenspan's Basic and Clinical Endocrinology. Book 1).
2. Gardner D., Shobek D. Basic and clinical endocrinology. Book 2 / Per. from English - M .: Publishing house BINOM, 2015. - 696 pages (David G. Gardner, Dolores Shoback. Greenspan's Basic and Clinical Endocrinology. Book 2).
3. Algorithms of specialized medical care for patients with diabetes mellitus / Ed. By I.I. Dedova, M.V. Shestakova, A. Yu. Mayorov. 9th issue (revised). - M., 2019. –212 p. DOI: 10.14341 / DM221S1 https://www.dia-endojournals.ru/jour/article/view/12211

4. Technology reference in diabetology. Ed. I. Reznika; Per. from English; Ed. I.A. Road. Gootar Media, 2020 208 pp. ISBN 978-5-9704-5788-7
https://mbookshop.ru/shop/endokrinologiya/spravochnik-po-tehnologiyam-v-diabetologii/
5. Amethov, A. S. type 2 diabetes mellitus. Problems and solutions. Volume 1.: studies. pos. / Amethov A. S. - 3rd ed. , Pererab. and add. - Moscow: Gootar Media, 2015. - 352 p. - ISBN 978-5-9704-3279-2. - Text: electronic // URL:
https://www.rosmedlib.ru/book/isbn9785970432792.html 6. Balabolkin M.I., Klebanova E.M., Kreminskaya V.M. Fundamental and clinical thyroidology: studies. Benefit. - M.: OJSC "Publishing Medicine", 2007. - 816 p.
7. Diagnostics and treatment of urgent states in the therapeutic clinic: Tutorial / Sub. P.P. Ogurtsova, V.E. Janitova. - Moscow: Medical Information Agency LLC, 2018. - 624 p. Chapter 23. Emergency conditions for endocrine diseases.
8. Vinogradov A.V. Differential diagnosis of internal diseases: Tutorial for universities / Vinogradov Alexey Viktorovich. - 3rd ed., Pererab. and add. - M.: Mia, 2009. - 912 p. - ISBN 978-5-8948-1772-9: 640.00.
9. Internal diseases: Textbook for universities: in 2 tons. T. 2 / Ed. V.S. Moiseeva, A.I. Martynova, N.A. Mukhin. - 3rd ed., Act. and add. - M.: Gootar Media, 2012. - 896 p. : IL. - ISBN 978-5-9704-2212-0
10. Abramova N.A., Aleksandrov A.A., Andreeva E.N., Dedov I.I., Melnichenko G.A. Endocrinology. National leadership. Brief edition. - M.: Goeotar Media, 2013. - 752 p.
http://kingmed.info/knigi/endokrinologia/book_2246/endokrinologiya_natsionalnoe_rukovodstvo_kratkoe_na_aleksandrovova_na_aaleksandrov_aa_andreeva_en_dedov_ii_melnichenko_ga-2013-pdf.

b) additional literature:

1. Incenko-Cushing disease. Ed. I.I. Dedova, G.A. Melnichenko Incenco Cushing's disease. - Moscow, 2011. - 342c.
2. Vegetative disorders: clinic, diagnosis, treatment. / Under. Ed. A.M. Wain. - M.: LLC Medical Information Agency, 2003.- 752 p.
3. Dedov I.I., Shestakova M.V. Sugar diabetes and arterial hypertension. - M.: Medical Information Agency LLC, 2006. - 344c.
4. Differential diagnosis in the clinic of internal diseases. V.A. Vinogradov, 2009
5. Neuroendocrinology / Henry M. Kronenberg, Shlomo Melmed, Kenneth S. Polonski, P. Reed Lar Sen; Per. from English Ed. I. I. Dedova, G. A. Melnichenko. - M.: Reed Elsiver LLC, 2010. - 472 p. - (Series "Endocrinology on Williams"). - Translation ed. Williams Textbook of Endocrinology, 11th Edition / Henry M. Kronenberg, Shlomo Melmed, Kenneth S. Polonsky and P. Reed Larsen. ISBN 978-5-91713-033-0 (Rus.).
6. Kyakbayev G. K. Endocrinology. Questions and Answers [Electronic Resource]: Tutorial / G.K. Kijaybayev, Shelepin A. A.; Ed. V.S. Moiseeva, J.D. Kobalava. - Electronic text data. - M.: Publishing House Rudn, 2012. - 142 p. - ISBN 978-5-209-04402-4.
7. Clinical recommendations. Standards of conducting patients. Issue 2. - M.: Gootar - Media, 2007. - 1376 p.
8. Frolov V.A. General Pathological Physiology: Textbook / V. A. Frolov, Bilibin D. P.; Under total. ed. V.A. Frolova, DP Bribines. - M.: Higher education and science, 2009, 2012. - 568 p. : IL. - ISBN 978-5-94084-039-8: 893.

9. Chernyshova T.E., Altunbaev R.A., Gurieva I.V., Balabolkin M.I., Trusov V.V., Kournikova I.A. Diabetic neuropathy (pathogenesis, diagnosis, treatment). Recommended by the Department of Educational Medical Institutions and Personnel Policy of the Ministry of Health of the Russian Federation for use in the educational process at the departments of postgraduate and additional professional education. Textbook for students of the departments of postgraduate and additional professional education - M .: ID MEDPRACTICA - M, 2005. - 108p.
10. Shevchenko O. P., Praskurnichy E. A., Shevchenko A. O. Metabolic syndrome. - M., 2004 .- - 141 p.
11. Marova E.I. Neuroendocrinology. Clinical essays. - Yaroslavl. DIA-press. – 1999
12. Eric R. Beck, Robert L. Souhami, Michael G. Hanna, Diana R. Holdright, Differential Diagnosis Lessons. - 2008 12.S.
13. Primrose, R. Twyman. Genomics. Role in medicine. // Bean. Knowledge laboratory, 2008 - 280 p.
14. Sychev DA, Ramenskaya GV, Ignatiev IV, Kukes VG Clinical pharmacogenetics: textbook / Ed. Academician of the Russian Academy of Medical Sciences V.G. Kukes and Academician of the Russian Academy of Medical Sciences N.P. Bochkov.- Moscow: GEOTAR-Media, 2007.- 248 p.
15. Wolfram Weckwerth W. (2006), Metabolomics: Methods And Protocols (Methods in Molecular Biology), Humana Press
16. Albala J. S., Humpheiy-Smith I. Protein Arrays, Biochips, and Proteomics. - 2003 .-- 418.
17. Glik B., Pasternak D. Molecular biotechnology. Principles and Applications. - M .: Mir, 2002, 589 p.

11. Guidelines for organizing the study of the discipline:

For the current monitoring of progress in each section of the module, test assignments consisting of 20 questions have been prepared. Questions for self-preparation of students for the lesson 1. Hormones: classification of hormones, regulation of hormone secretion (feedback principle, principle of autonomy, circadian rhythms, regulation of endocrine functions by the brain).
2. General principles of synthesis, secretion and transport of hormones.
3. Mechanisms of direct and feedback. The hypothalamus-pituitary-adrenal system.
3.1. Hypothalamic hormones: liberins and statins.
3.2. Pituitary hormones: TSH, ACTH, STH, growth hormone, prolactin, ADH. The structure and function of hormones.
4. Adrenal glands. System "hypothalamus-pituitary-adrenal glands". Adrenal medulla: sympatho-adrenal system.
5. The pancreas and its endocrine function.
6. Gastrointestinal hormones. APUD-system.
7. System "hypothalamus-pituitary-thyroid gland".
8. Parathyroid glands. Bone tissue and endocrine regulation of bone metabolism.
9. Epiphysis.
10. System "hypothalamus-pituitary-gonads". Students are required to attend classes, complete the teacher's assignments, and familiarize themselves with the recommended literature. In practical classes and lectures in the classroom, the relevant topics are analyzed using multimedia technology (computer, projector). Independent work outside the classroom can take place both in the classrooms of the department and in the computer class, where students can study material on the presentations prepared by the teachers of the department, as well as on tests prepared in electronic

and paper form. Presentations on the topics of classes can be recorded on CDs or flash cards for self-study of students on a home computer. Textbooks in electronic form on a number of topics studied are posted on the pages of the department and the staff of the department of hospital therapy at the TUIS RUDN University, as well as on the local resources of the electronic library system of the RUDN University. The records of the lessons are displayed in TUIS. As one of the forms of independent work, preparation of abstracts for various sections of the course, as well as presentation of reports at the seminar is provided. Extracurricular independent work includes: study of material from a textbook, teaching aids on paper and electronic media; preparation of an abstract message or presentation on a selected topic; preparation for performing tests and test tasks, writing a medical history. Requirements for writing and formatting an abstract This form of control is an independent research work. It is unacceptable to simply copy text from books, articles or download a finished work from the Internet. The abstract has a strictly defined structure: title page, content, introduction, chapters of the main part, conclusion, list of references. The volume of the abstract is at least 15 pages. The pages of the abstract, except for the title page, must be numbered. The text of the abstract is printed in font 14 with 1.5 spacing. Margins: left - 3 cm, right - 1 cm, top - 2 cm, bottom - 2.5 cm. The text is printed with paragraphs. Headings and subheadings are separated from the body text at the top and bottom by three spaces. When registering the title page, it is necessary to indicate the university, faculty, department, topic of the abstract, student's full name, group number, teacher's full name. The introduction takes 1-1.5 pages and introduces readers to the course of the problem. In the introduction, it is necessary to formulate the purpose of the work, it is imperative that there is relevance, in which it is necessary to justify your choice of this topic. In the main part, it is necessary to give a meaningful description of the problem. The text of the main part should be divided into several paragraphs (no less than three and no more than five), have references to literary sources. The preparation of the abstract should be carried out on the basis of those scientific materials that are relevant today (for the last 10 years). In the conclusion, conclusions should be formulated that reflect the main results of the work. The list of references is compiled in alphabetical order of the names of authors or titles of works (in the absence of the author's name). The list uses the general numbering of literature sources. When writing an abstract, it is recommended to refer to the latest scientific sources. When preparing the initial data of the source, the surname and initials of the author, the title of the work, the place of publication, the publisher, the year of publication, and the total number of pages are indicated.

Presentation requirements

1. The presentation is an independent work and is used as a visual aid or visual row.
2. Requirements for the content of a multimedia presentation:
1 correspondence of the content of the presentation to the set didactic goals and objectives;
2 observance of the accepted rules of spelling, punctuation, abbreviations and rules of text formatting (absence of a period in headings, etc.);
3 absence of factual errors, reliability of the information provided;
4 conciseness of the text on the slide;
5 completeness

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4 conciseness of the text on the slide;
5 completeness (the content of each piece of text information is logically complete);
6 combining semantically related information elements into coherently perceived groups;
7 conciseness and brevity of presentation, maximum information content of the text;
8 arrangement of information on the slide (preferably horizontal information arrangement, from top to bottom along the main diagonal; the most important information should be located in the center of the screen; if there is a picture on the slide, the caption should be located under it; it is desirable to format the text to its width; avoid "torn" edges of the text);
9 Text slides make up no more than 30% of the presentation, the rest of the slides are presented in the form of graphic objects (graphs, charts, tables, etc.).
10 information is presented in an attractive, original way, draws the attention of students.
3. Requirements for visual and sound sequence:
1 use only optimized images (for example, reduction using Microsoft Office Picture Manager, compression using the Microsoft Office Image Adjustment Panel);
2 correspondence of images to content;
3 correspondence of images to the age characteristics of students;
4 image quality (contrast of the image with respect to the background; absence of “unnecessary” details in the photograph or picture, brightness and contrast of the image, the same file format);
5 the validity and rationality of the use of graphic objects.
4. Requirements for the text:
1 readability of the text on the background of the presentation slide (the text is clearly visible on the background of the slide, the use of contrasting colors for the background and text);
2 point size corresponds to the age characteristics of students and must be at least 24 points;

3 line length no more than 36 characters;
4 space between lines within a paragraph is 1.5, and between paragraphs - 2 intervals;
5. Requirements for the effectiveness of using the presentation:
1 taking into account the requirements of SanPiNs for the use of technical means (duration of continuous viewing of the presentation - no more than 20 minutes);
2 creative, original approach to creating a presentation.
6. The presentation should not be boring, monotonous, cumbersome (15-20 slides are optimal).
7. The title slide contains the data of the author (full name and name of the educational institution), the name of the material, the date of development. The option of using headers and footers is possible. Other placement of the author's data is permissible if it interferes with the perception of the material on the title.
8. The last slide shows the list of sources used, active and accurate links to all graphic objects. On the closing slide, you can once again indicate

Fund of assessment tools for intermediate certification students in the discipline "Endocrinology".

Materials for assessing the level of mastering the educational material of the discipline "Endocrinology" (evaluation materials), including a list of competencies with an indication of the stages of their formation, a description of indicators and criteria for evaluating competencies at various stages of their formation, a description of the assessment scales, standard control tasks, situational tasks necessary to assess knowledge, abilities, skills and experience of activities that characterize the stages of the formation of competencies in the process of mastering the educational program; Methodological materials defining the procedures for assessing knowledge, skills, skills and experience of activities, characterizing the stages of the formation of competencies, have been developed in full and are available for students on the discipline page in the TUIS RUDN University.

The program has been drawn up in accordance with the requirements of the OS of VO RUDN

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Head of the Program — **I.V. Radysh**