
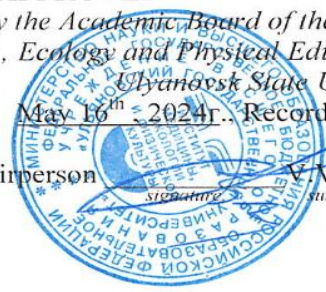


Ministry of science and high education RF Ulyanovsk State University	Form	
F-Educational plan of the Disaster medicine		

**APPROVED**  
by the Academic Board of the Institute  
for Medicine, Ecology and Physical Education at  
Ulyanovsk State University  
May 16<sup>th</sup> 2024г. Record №9/260

Chairperson V.V. Mashin  
surname, initials



### EDUCATIONAL PLAN

Discipline	Urology, andrology
Faculty	Medical faculty of T.Z. Biktimirov
Name of department	Department of hospital surgery, anesthesiology, reanimatology, urology, traumatology, orthopedics
Course	4

Direction (specialty) 31.05.01 General medicine

the code of the direction (specialty), full name

Orientation (profile/specialty) not provided

full name

Form of training \_\_\_\_\_ full-time \_\_\_\_\_

full-time, part-time, part-time (specify only those that are being implemented)

Date of introduction into the academic process at Ulyanovsk State University: 01.09.2024.

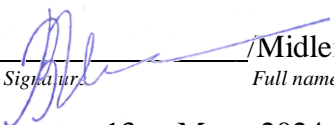
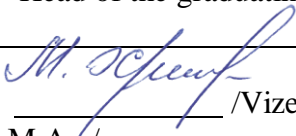
Revised at the Department meeting, Record No. \_\_\_\_\_ of \_\_\_\_\_ «\_\_\_\_\_» 20\_\_


Revised at the Department meeting, Record No. \_\_\_\_\_ of \_\_\_\_\_ «\_\_\_\_\_» 20\_\_

Revised at the Department meeting, Record No. \_\_\_\_\_ of \_\_\_\_\_ «\_\_\_\_\_» 20\_\_

Information about the authors:

Initials	Abbreviation of the department	Degree, scientific rank
Klochkov V.V	Department of hospital surgery, anesthesiology, reanimatology, urology, traumatology, orthopedics	Professor, MD, Associate Professor

Agreed	Agreed
Head of department, developing discipline	Head of the graduating Department
 /Midlenko V.I. / <small>Signature Full name</small>	 /Vize-Khripunova M.A. / <small>Signature Full name</small>
«13» May 2024 г.	«13» May 2024 г.

Ministry of science and high education RF Ulyanovsk State University	Form	
F-Educational plan of the Disaster medicine		

## 1. GOALS AND OBJECTIVES OF LEARNING THE DISCIPLINE

Objectives of mastering the discipline:

- To prepare future general practitioners so that they can independently make a preliminary diagnosis of major urological diseases, determine the tactics of further management of a urological patient, and carry out a differential diagnosis.
- To form students' knowledge about diseases of the male reproductive system, modern methods of diagnosis and treatment in andrology.

Objectives of mastering the discipline:


- Strong assimilation by students of all questions of the program.
- Development of students' clinical thinking, improvement of methods of differential diagnosis.
- Teaching students to diagnose atypical forms of the disease, varieties of the course of the disease in each specific patient.
- Mastering the methods of conservative treatment, preoperative preparation and postoperative management of the patient.
- Mastering by students of methods of instrumental, X-ray urological examination of patients.
- Development of skills for performing surgical procedures, assistance in operations on the organs of the urinary system.
- Writing a medical history
- To form students' understanding of the embryogenesis of male genital organs.
- Concept of hormonal regulation of the male body.
- Provide an understanding of the basic concepts of spermatology.
- To form knowledge about the mechanisms of development of male infertility and sexual dysfunctions in men.
- To train students in methods of prevention and metaphylaxis of male infertility and sexual disorders in men.
- To educate students about menopausal disorders in men.
- To teach students to correctly diagnose and provide therapeutic measures to patients with diseases of the male reproductive system.

## 2. PLACE OF DISCIPLINE IN THE STRUCTURE OF OPOP:

The discipline "Urology and Andrology" belongs to the variable part of the curriculum of the specialty 31.05.01 "General Medicine" (compulsory disciplines). Studied in the 4th year in the 8th semester.


The discipline is based on the knowledge gained as a result of mastering the following disciplines: "Anatomy", "Histology, embryology, cytology", "Biochemistry", "Normal physiology", "Microbiology, virology", "Propedeutics of internal diseases", "General surgery", "Pharmacology", "Pathological anatomy", "Pathophysiology, clinical pathophysiology", "Topographic anatomy and operative surgery".

The study of the discipline "Urology and Andrology" allows students to acquire the necessary knowledge, skills and abilities in the development of the following disciplines: "Dermatovenereology", "Andrology", "Surgery", "Therapy", "Obstetrics and Gynecology", "Anesthesiology, resuscitation and intensive care", "Oncology", "Radiation diagnostics".

Ministry of science and high education RF Ulyanovsk State University	Form	
F-Educational plan of the Disaster medicine		

**3. LIST OF PLANNED LEARNING OUTCOMES ON THE DISCIPLINE (MODULE), CORRELATED TO THE PLANNED OUTCOMES OF LEARNING THE EDUCATIONAL PROGRAM**

<b>Code and name of the implemented competence</b>	<b>List of planned learning outcomes by discipline (model), correlated with indicators of achievement of competencies</b>
<b>PK - 2</b> - Readiness to collect and analyze patient complaints, medical history data, examination results, laboratory, instrumental, pathoanatomic and other studies in order to recognize the condition or establish the presence or absence of	<p><b>Know:</b> The diagnostic significance of the changes detected during the clinical examination of the patient, the use of laboratory and instrumental diagnostic methods.</p> <p><b>Be able to:</b> Conduct a survey, physical examination of the patient; interpret the results of laboratory and instrumental diagnostics and use them in substantiating the clinical diagnosis.</p> <p><b>Own:</b> Methods of clinical examination of the patient, interpretation of the results of additional research methods, algorithm for substantiating the preliminary and clinical diagnosis</p>

Ministry of science and high education RF Ulyanovsk State University	Form	
F-Educational plan of the Disaster medicine		


<p><b>PK -3</b> - The ability to determine in patients the main pathological conditions, symptoms, disease syndromes, nosological forms in outpatient and day hospital conditions.</p>	<p><b>Know:</b> Causes, clinical manifestations for the diagnosis of andrological pathology in outpatient and day hospital conditions.</p> <p><b>Be able to:</b> Diagnose diseases of the reproductive system in men on an outpatient basis and in a day hospital.</p> <p><b>Own:</b> Methods for the diagnosis of the main clinical syndromes in urology and andrology. An analysis algorithm for setting a detailed clinical diagnosis with diseases of the genitourinary system based on the international classification of diseases</p>
--	--

#### 4. TOTAL EMPLOYMENT OF THE DISCIPLINE

##### 4.1. Discipline volume in credit units (total) 2ZET 72 hours

##### 4.2. Discipline volume by type of academic work (in hours)


	Number of hours (form of study - full-time)	
	Total according to plan	Incl. by semester
		7;8
1	2	3
Contact work of students with the teacher in accordance with the UP		
Auditory lessons:	54	54
Lectures	-	-
Seminars and workshops	54	54
Laboratory works, workshops	-	-
Independent work	18	18
Current control (quantity and type: cont. Work, colloquium, abstract)	Current control (quantity and type: cont. Work, colloquium, abstract) Assessment of oral response, testing, solving situational problems	Current control (quantity and type: cont. Work, colloquium, abstract) Assessment of oral response, testing, solving situational problems


Ministry of science and high education RF Ulyanovsk State University	Form	
F-Educational plan of the Disaster medicine		

### 4.3. Content of the discipline (module.) Distribution of hours by topics and types of academic work:

Full-time form of education \_\_\_\_\_


Title of sections and topics	Total	Types of training sessions			Knowledge current control form
		Auditory lessons		Independent work	
		lectures	practical training, seminars		
1	2	3	4	5	6
<b>Section 1: Symptomatology and semiotics of urological diseases.</b>					
1. Symptomatology and semiotics of urological diseases. Laboratory methods for the diagnosis of urological diseases.	8	—	3	1	Assessment of the oral response Testing Solving situational tasks
2. X-ray, radioisotope, ultrasound research methods in urology. Urodynamics.		—	3	1	Assessment of the oral response Testing Solving situational tasks
<b>Section 2. Abnormalities of the urinary system. Damage to the organs of the genitourinary system.</b>					
3. Anomalies in the development of the urinary system. Clinic, diagnostics, treatment.	8	—	3	1	Assessment of the oral response Testing Solving situational tasks

Ministry of science and high education RF Ulyanovsk State University			Form		
F-Educational plan of the Disaster medicine					
4. Damage to the organs of the genitourinary system. Clinic, diagnostics, treatment.		—	3	1	Assessment verbal response Testing Solving situational tasks
<b>Section 3. Inflammatory diseases of the urinary system.</b>					
5. Non-specific inflammatory diseases of the urinary system.	8	—	3	1	Assessment of the oral response Testing Solving situational tasks
6. Specific inflammatory diseases of the urinary system.		—	3	1	Assessment of the oral response Testing Solving situational tasks
<b>Section 4 Urolithiasis. Hydronephrosis, ureterohydronephrosis.</b>					
7. Urolithiasis disease.	8	—	3	1	Assessment of the oral response Testing Solving situational tasks
8. Hydronephrosis, ureterohydronephrosis		—	3	1	Assessment of the oral response Testing Solving situational tasks
<b>Section 5. Tumors of the genitourinary system.</b>					

Ministry of science and high education RF Ulyanovsk State University	Form	
F-Educational plan of the Disaster medicine		

9. Kidney tumors		—	2	—	Assessment of the oral response Testing Solving situational tasks
10. Bladder tumors					Assessment of

	8	—	2	—	the oral response Testing Solving situational tasks
11. Prostate adenoma		—	1	—	Assessment of the oral response Testing Solving situational tasks
12. Prostate cancer		—	1	—	Assessment of the oral response Testing Solving situational tasks
13. Penile cancer		—	—	1	Assessment of the oral response Testing Solving situational tasks
14. Testicular cancer		—	—	1	Assessment of the oral response Testing Solving situational tasks
<b>Section 6. Arterial and nephrogenic hypertension. Surge arrester, KhPN</b>					

Ministry of science and high education RF Ulyanovsk State University		Form			
F-Educational plan of the Disaster medicine					


15. Arterial and nephrogenic hypertension.	8	—	2	2	Assessment of the oral response Testing Solving situational tasks
16. Acute renal failure.		—	2	—	Assessment of the oral response Testing Solving

					situational tasks
17. Chronic renal failure		—	2	—	Assessment of the oral response Testing Solving situational tasks


**Section 7. Anatomy and physiology of the male reproductive system.**

18. Anatomy of the male reproductive system	8	—	2	—	Assessment of the oral response Testing Solving situational tasks
19. Physiology of the male reproductive system.		—	2	—	Assessment of the oral response Testing Solving situational tasks
20. Methods of examination of andrological patients.		—	2	—	Assessment of the oral response Testing Solving situational tasks




Ministry of science and high education RF Ulyanovsk State University	Form	
F-Educational plan of the Disaster medicine		

21. Spermatogenesis. Patospermia. Peyronie's disease, Priapism.		—	—	2	Assessment of the oral response Testing Solving situational tasks
<b>Section 8. Psychology and physiology of human sexual life</b>					
22. Physiology and psychology of sexual intercourse.		—	3	—	Assessment of the oral response Testing Solving situational tasks
23. Sexual disorders in men.	8				Assessment of the oral response Testing Solving situational tasks
24. Sex reassignment surgery.		—	—	2	Assessment of the oral response Testing Solving situational tasks
<b>Section 9. Male infertility.</b>					
25. Etiology, pathogenesis, diagnosis of male infertility.		—	3	—	Assessment of the oral response Testing Solving situational tasks
26. Male infertility treatment.		—	3	—	Assessment of the oral response Testing Solving situational tasks

Ministry of science and high education RF Ulyanovsk State University		Form			
F-Educational plan of the Disaster medicine					
27. Androgens and their role in the male body.	8	—	—	1	Assessment of the oral response Testing Solving situational tasks
28. Menopause disorders in men.		—	—	1	Assessment of the oral response Testing Solving situational tasks
Offset					
Total: 72 hours	54			18	

When organizing classes in an interactive form, technologies are used: collective discussion of the issues of the topic of the lesson, presentation of a report.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

## 5. Discipline (module) content

### Section 1. Symptomatology and semiotics of urological diseases.

#### Topic 1. Symptomatology and semiotics of urological diseases.

##### Laboratory methods for the diagnosis of urological diseases.

##### Content of the topic.

Pain. Etiopathogenesis of renal colic. The clinical picture. Differential diagnosis of rightsided renal colic from acute appendicitis. Pain in pathology in the pelvis, ureter, bladder, prostate gland, urethra.

Disorders of urination - dysuria. Oligakiuria, nocturia, stranguria. Urinary incontinence (true, false). Incontinence of urine. Difficulty urinating. Acute and chronic ischuria. Paradoxical ischuria.

Quantitative changes in urine. Polyuria, opsuria, oliguria, anuria (prerenal, renal, postrenal).

Qualitative changes in urine. Urine is normal (specific gravity, hormones, trace elements, organic and inorganic compounds). Hypersthenuria. Change in color and clarity of urine. Proteinuria (true, false, glomerular, tubular, mixed). Piuria. Hematuria is macro and microscopic. Initial, total, terminal. Urethroragia, differential diagnosis with hematuria. Hemoglobinuria, myoglobinuria, cilinduria, bacteriuria, pneumaturia, lipuria, hyluria, hydatiduria.

General clinical research methods. Examination, palpation, percussion, auscultation.

Instrumental and endoscopic research methods. Charrier scale, Types of cystoscopes. Classification of catheters.

Cystoscopy, urethroscopy. Indications, contraindications, complications (urethral fever, false course, urethral rhagia).

Puncture biopsy of the kidney, prostate, testicle. Cytological diagnostics of bladder tumors.

Study of urine for latent pyuria: according to Nechiporenko, Kakovsky - Addis. What is an antibioticogram?

Study of the functional capacity of the kidneys and bladder. Zemnitsky test. Residual nitrogen, urea, blood creatinine. Chromocystoscopy. Cystometry, sphincterometry, uroflowmetry.

#### Topic 2. X-ray, radioisotope, ultrasound research methods in urology. Urodynamics.

##### Content of the topic.

X-ray anatomy of the kidneys and urinary tract.

Preparing the patient for X-ray examination.

Survey urography. Formation of simulating calculi of the organs of the system.

Classification of contrast agents. Excretory urography. Indications and contraindications.

Infusion urography, compression. Retrograde pyelography. Antegrade pyelography.

Pelvic-renal refluxes: pyelophobic, pyelotubular, pyelovenous.

Descending and retrograde cystography. Pneumocystography (sedimentary cystogram), vocal cystogram.

Pneumoren. Pneumoretroperitoneum. Indications, risks of complications.


Urethrography is descending, ascending. Indications, contraindications, complications.

Genitography.

Angiography: renal, transluminal, transfemoral. Venokavagraphy. Pelvic phlebography.

Scanning of the kidneys, lymph nodes, bones.

Ultrasound, CTG, NMR.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

## **Section 2. Abnormalities of the urinary system. Damage to the organs of the genitourinary system**

### **Topic 1. Anomalies of the urinary system.**

#### **Content of the topic.**

Kidney anomalies. Diagnostic methods: palpation, functional tests, excretory urography, angiography. Types of kidney anomalies: number anomalies - aplasia, hypoplasia, third accessory kidney, double kidney with splitting and doubling of the ureter; position anomalies - homolateral dystopia (pelvic, ileal, lumbar, thoracic), heterolateral dystopia (with fusion, without fusion), anomalies in the relationship of fusion kidneys - symmetric (horseshoe kidneys, bisque kidneys), asymmetric (L-shaped, C-shaped), structural anomalies - polycystic kidneys, solitary cysts, multicystic kidneys, abnormalities of the structure of the medulla. Ureteral anomalies: achalasia, ureterocele, ectopia. Bladder anomalies. Diagnostic methods. Types of bladder abnormalities: exstrophy, diverticula, double bladder, fistulas of the urinary duct. Male urethra abnormalities. Diagnostic methods: examination, urethrography. Types of anomaly: urethral atresia, paraurethral passages, hypospadias (capitate, scrotal, perineal, total), epispadias.

### **Topic 2. Damage to the organs of the genitourinary system.**

#### **Content of the topic.**

Kidney injury. Closing and opening kidney damage. Pathogenesis. Classification. Isolated and combined damage. Symptomatology for various kidney injuries. Early complications. Diagnostics. The value of determining the functional state of the contralateral kidney. Excretory urography, retrograde pyelography and antiography for kidney injury.

Treatment: conservative and operative, indications. Possible late complications / pyelonephritis, arteriovenous fistula formation, pedunculitis, sclerosing periureteritis, hydronephrotic transformation, nephrolithiasis /.


Damage to the ureters: during instrumental studies, during operations. Pathogenesis. Clinical symptomatology. Diagnostics. Treatment. Complications and their treatment. Injury to the bladder. Pathogenesis of extraperitoneal ruptures of the bladder. Combined injury. Classification of bladder injuries. Diagnostic value of 2-phase cystography and excretory urography. Treatment of intraperitoneal bladder rupture. Symptomatology, diagnosis, treatment. The importance of drainage of the bladder and paravesical space. Damage to the bladder during childbirth, gynecological operations, instrumental examinations. Diagnostics. Treatment.

Urethral injury. Pathogenesis. The mechanism of injury. Simple and combined damage. Pathological anatomy. Clinical symptomatology. Diagnostics. The value of urethrography. Indications for the primary suture of the urethra.

Importance of urinary bladder drainage and urohematoma. Consequences of urethral trauma: early and late complications. Urethral structures, their diagnosis and treatment. The role of Holtsov, Solovov, Fronshtein, Vishnevsky in the development of operative urology of post-traumatic injuries of the urethra.

Injury to the organs of the scrotum. Open and closed. Clinical symptomatology.

Organ-preserving nature of surgical treatment.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

Penile trauma. The clinical picture. Treatment.

### **Section 3. Inflammatory diseases of the urinary system.**

#### **Topic 1. Non-specific inflammatory diseases of the urinary system.**

##### **Content of the topic.**

Etiology and pathogenesis of acute pyelonephritis. Pathogens. Penetration routes. N.A. Lopatkin's classification.

Symptoms: pain, increased thaw temperature, chills, dysuria.

Diagnosis: palpation of the kidneys, tingling symptom, bacteriuria, leukocyturia, Sternheimer-Malbin cells, active leukocytes. X-ray signs of acute pyelonephritis.

Purulent pyelonephritis: apostematous pyelonephritis, kidney carbuncle, abscess, pyonephrosis.

Differential diagnosis of acute, serous and purulent pyelonephritis.

Pyelonephritis treatment: conservative, operative.

Cystitis. Etiology, pathogenesis. Classification. Ways of penetration of infection into the bladder: urethral - ascending, renal - descending, lymphogenous and hematogenous. Types of infection: non-specific, specific. Factors contributing to the onset of cystitis: local and general.

Symptoms, course, diagnostics. Treatment. Prevention.

#### **Topic 2. Specific inflammatory diseases of the urinary system.**

##### **Content of the topic.**

Tuberculosis of the kidneys and urinary tract. Etiology, pathogenesis. Pathological anatomy.

Symptoms of kidney tuberculosis. The main forms of the clinical course of renal tuberculosis: (hematuric; renal colic; chronic cystitis; chronic pyelonephritis).

Clinical and radiological forms of renal tuberculosis: no destruction, "parenchymal" or infiltrative tuberculosis, initial destruction (papillary tuberculosis, small cavities, far-reaching destruction), polycavernous tuberculosis, tuberculous pyonephrosis, misty kidney.


Diagnosis of renal tuberculosis. The need for active preventive examinations for early

### **Section 5. Tumors of the genitourinary system. Topic 1. Kidney tumors Content of the topic.**

Etiology of the onset of malignant neoplasms. The histological structure of kidney tumors. Benign renal tumors (adenoma, lipoma, fibroma). Malignant renal tumors (adenocarcinoma, sarcoma, Wilms' mixed tumor). Benign papilloma, angioma and malignant tumors (papillary carcinoma, squamous cell carcinoma, epidermoid carcinoma) of the renal pelvis. Modern classification of the kidneys using the TMM system. Hematogenous spread of kidney tumors and the most frequent localization of metastases.

Symptomatology. Early "atypical" signs (permanent microhematuria, cylinduria, erythrocytosis, leukocytosis, hyperpyrexia, arterial hypertension, progressive weakness, poor sleep and appetite, etc.). The classic triad of symptoms (hematuria, pain, palpable swelling). Features of hematuria, its cause. Symptoms of hematuria, its cause. Symptoms of "varicocele", "jellyfish head" and prerequisites for the occurrence. Features of papillary cancer of the pelvis and ureters.

The role of cystoscopy in the diagnosis of the source of hematuria. Radioisotope methods for the diagnosis of kidney tumor and its metastases. Place and significance of ultrasound - scanning in the diagnosis of kidney masses. X-ray diagnostics: excretory urography, retrograde pyelography.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

The value of computed tomography in the diagnosis of kidney cancer and its metastases. Diagnostic capabilities of renal angiography. Kidney cancer embolization therapy. Types of operations for hypernephroid renal cancer and papillary cancer of the pelvis. Pre - and postoperative X-ray and radiotherapy. Results, advantages and disadvantages of radiation therapy for renal tumors. Chemotherapy of a tumor, its metastases. Hormone therapy. Prognosis of operated patients.

## **Topic 2. Tumors of the bladder.**

### **Content of the topic.**


Tumors of the bladder. Etiology and pathogenesis. Pathological anatomy. Classification by histological structure. Benign and malignant tumors: atypical papillary fibroepithelioma, papillary cancer, solid cancer, glandular cancer, chorionepithelioma. Classification of bladder cancer by stage, adopted by the International Union of Antitumor. Ways of spread and metastasis of bladder cancer. Symptoms and clinical course. Dependence of the clinical picture of the disease on the type of tumor, the nature of its growth and localization. Diagnostics. The value of cystoscopy in determining the type, location and degree of infiltrating tumor growth. Cytological examination of urine sediment. Excretory urography, descending cystography, ascending cystography: combination of cystography with pericystography and tomography, polycystography, polypositional cystography. Direct and radioisotope lymphoangiadenography in the diagnosis of bladder tumor metastases in the lymph nodes. Diagnostic capabilities of ultrasound - scanning, computed tomography in determining the depth of invasion of the bladder tumor. Treatment. Surgical methods for the treatment of bladder tumors: resection of the bladder with or without ureterocystoanastomosis, with removal of the affected regional lymph nodes, cystectomy with ureterosigmoidoplasty, other methods of urine diversion. The use of laser technology in the treatment of bladder cancer. Radiation therapy as an additional method of treatment for patients with bladder tumors. Chemotherapy. The value of intravesical chemotherapy using antitumor antibiotics of the adriamycin group. The place of endoscopic surgery in the treatment of bladder cancer and the indications for it.

## **Topic 3. Prostate adenoma.**

### **Content of the topic.**

Prostate adenoma. Etiology, pathogenesis. Pathological anatomy. Classification. Pathogenesis of the stages of the course of prostate adenoma. Clinical manifestations of the disease in various stages. Pathological changes that occur in the urinary tract during the development of prostate adenoma. The concept of bladder obstruction. Diagnostics. Anamnesis. Digital rectal examination. X-ray diagnostic methods - excretory urography, cystography according to Kneise-Schober. The role of percutaneous and transrectal ultrasound in the diagnosis of the condition of the prostate gland. Differential diagnosis of prostate adenoma (chronic prostatitis, prostate cancer, urethral stricture, bladder tumor, bladder stones, bladder neck sclerosis). Complications of prostate adenoma: acute urinary retention, hemorrhage, pyelonephritis, bladder stones, chronic renal failure. Conservative treatment. Surgical treatment: advantages and disadvantages of the method. Onestage and two-stage adenomectomy. Indications and contraindications for adenomectomy. Transurethral electroresection of prostate adenoma. Complications and their prevention.

## **Topic 4. Prostate cancer.**

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

## **Content of the topic.**

Prostate cancer. Etiology and pathogenesis. Pathological anatomy. Stages of the disease depending on the germination of the prostate capsula tumor

### **Topic 5. Testicular tumors.**

#### **Content of the topic.**

Testicular tumor. Pathological anatomy and classification. Modern methods for the diagnosis of testicular tumors and their metastases. Modern methods of treatment. Surgical, X-ray therapy, chemotherapy.

### **Topic 6. Cancer of the penis.**

#### **Content of the topic.**

Penile cancer .. Pathological anatomy and classification. Modern methods for the diagnosis of penile cancer and their metastases. Modern methods of treatment. Surgical, X-ray therapy, chemotherapy.

## **Section 6. Arterial nephrogenic hypertension. OPN, CPN.**

### **Topic 1. Nephrogenic arterial hypertension.**

#### **Content of the topic.**

Types of nephrogenic hypertension: parenchymal, vasorenal. Etiology and pathogenesis of renovascular hypertension. Place and conditions of renin formation in the kidneys. Morphological changes in the renal artery and its branches, leading to arterial hypertension (atherosclerosis, fibromuscular dysplasia, aneurysms, arteriovenous fistula, renal artery thrombosis, kidney infarction, etc.). The role of nephroptosis in the development of renovascular hypertension.

Chronic pyelonephritis, glomerulonephritis, etc. are the causes of hypertension. Pathogenesis. Secondary lesion of the renal artery in pyelonephritis. A shriveled kidney as a source of hypertension.

Clinical course and symptomatology of nephrogenic hypertension.

Diagnostics. Excretory urography, renography, indirect renal angiography. Angiotensive, captopril tests. Renal angiography is the main method for diagnosing renovascular hypertension. Separate determination of renin activity in blood from kidney veins and its role in the diagnosis of hypertension.


Treatment: conservative, operative.

### **Topic 2. Acute renal failure.**

#### **Content of the topic.**

Acute renal failure. Etiology. Pathogenesis. Pathological changes in the kidneys.

Stages of acute renal failure and their characteristics - stage of shock, stage of oligoanuria, stage of polyuria, stage of recovery.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

Treatment by stage of the disease. Hemodialysis with an artificial kidney apparatus - indications, principle of operation. Application of peritoneal, gastric, intestinal dialysis, hemofiltration, hemodiafiltration, separate ultrafiltration, hemosorption, plasmapheresis, plasmadsorption.

### **Topic 3. Chronic renal failure.**

#### **Content of the topic.**

Chronic renal failure. Etiology and pathogenesis, stages and forms of clinical course. Clinic, diagnostics. Conservative treatment. Surgical treatment of patients in the terminal stage of chronic renal failure. Indications for hemodialysis, peritoneal dialysis. Kidney transplant. Indications for kidney transplantation. Recipient preparation. Donor selection. Postoperative management, modern immunosuppressive drugs.

### **Section 7. Anatomy and physiology of the male reproductive system.**

#### **Topic 1. Anatomy of the male reproductive system.**

##### **Content of the topic.**

Anatomy of the penis, urethra; Anatomy of the accessory glands: prostate, seminal vesicles, bulbourethral glands, paraurethral glands. Anatomy of the scrotum and its organs: testicle, epididymis, spermatic cord. Anatomy of the vas deferens, ejaculatory duct. Anatomy of testis hydatids, epididymis and ducts.

#### **Topic 2. Physiology of the male reproductive system.**

##### **Content of the topic.**

The structure and function of the reproductive system. The central level of regulation of the male reproductive system. The peripheral and tissue levels of regulation of the male reproductive system. Hormonal control and cytological characteristics of spermatogenesis. Hormonal control of spermatogenesis and its interaction with Sertoli and Leydig cells.

#### **Topic 3. Methods of examination of andrological patients.**

##### **Content of the topic.**

Complaints, anamnesis, examination. Questionnaires and questionnaires: sexual formula of men, international index of erectile function, scale of quantitative assessment of male copulatory function (ICF).

Laboratory diagnostics: biochemical analysis of seminal plasma, studies of PSA levels, blood acid phosphatase, hormonal studies.

Instrumental diagnostics: ultrasound of the scrotum and prostate-vesicular complex, X-ray techniques (cavernosometry and cavernosography, MRI), andrological diagnostic operations. Assessment of sexual development in boys.

### **Section 8. Psychology and physiology of human sexual life.**

#### **Topic 1. Physiology and psychology of sexual intercourse.**

##### **Content of the topic.**


Sex drive (libido). Erection. Ejaculation. Orgasm

#### **Topic 2. Sexual disorders in men.**

Erectile dysfunction. Etiology, pathogenesis, diagnosis, treatment. Ejaculation disorders. Classification. Diagnostics. Treatment.

### **Section 9. Male infertility.**



Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

### **Topic 1. Male infertility. Etiology, pathogenesis, diagnosis. Other diseases of the male genital organs.**

#### **Content of the topic.**

Causes and classification of male infertility. Algorithm and diagnostic methods. Genital infections. Varicocele. Endocrine infertility. Immune infertility. Chromosomal pathology. Other diseases of the male genital organs: dropsy of the membranes of the testicle, cyst of the spermatic cord, seminal cyst, cyst of the epididymis, oleogranuloma of the penis.

### **Topic 2. Treatment of male infertility.**

#### **Content of the topic.**

Conservative methods of treatment of male infertility. Surgical methods of treatment of male infertility.

Assisted reproductive technologies in the treatment of male infertility: intracorporeal and in vitro fertilization. Sperm preservation.

### **Topic 3. Menopause disorders in men.**

#### **Content of the topic.**

Androgens and their role in the male body. Aging and climacteric disorders in men.

Menopause syndrome in men, structure and diagnosis. Pathogenetic treatment of climacteric disorders.

## **6. THEMES OF PRACTICAL AND SEMINARS**

### **Section 1. Symptomatology and semiotics of urological diseases.**


#### **Topic 1. Symptomatology and semiotics of urological diseases.**

Laboratory methods for the diagnosis of urological diseases.

The form of the exercise is a practical lesson.

#### **Questions on the topic for discussion in class:**

1. Pain. Etiopathogenesis of renal colic. The clinical picture. Pain in pathology in the pelvis, ureter, bladder, prostate gland, urethra.
2. Disorders of urination - dysuria. Oligakiuria, nocturia, stranguria. Urinary incontinence (true, false). Incontinence of urine. Difficulty urinating. Acute and chronic ischuria. Paradoxical ischuria.
3. Quantitative changes in urine. Polyuria, opsuria, oliguria, anuria (prerenal, renal, postrenal).
4. Qualitative changes in urine. Urine is normal (specific gravity, hormones, trace elements, organic and inorganic compounds). Hypersthenuria. Change in color and clarity of urine. Proteinuria (true, false, glomerular, tubular, mixed). Piuria. Hematuria is macro and microscopic. Initial, total, terminal. Urethroragia, differential diagnosis with hematuria. Hemoglobinuria, myoglobinuria, cilinduria, bacteriuria, pneumaturia, lipuria, hyluria, hydatiduria.
5. General clinical research methods. Examination, palpation, percussion, auscultation.
6. Instrumental and endoscopic research methods. Charrier scale, Types of cystoscopes. Classification of catheters.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

7. Cystoscopy, urethroscopy. Indications, contraindications, complications (urethral fever, false course, urethral rhagia).
8. Study of urine for latent pyuria: according to Nechiporenko, Kakovsky - Addis. What is an antibioticogram?
9. Study of the functional capacity of the kidneys and bladder. Zemnitsky test. Residual nitrogen, urea, blood creatinine. Chromocystoscopy.

### Self-study questions:

1. Differential diagnosis of right-sided renal colic from acute appendicitis.
2. Cystometry, sphincterometry, uroflowmetry.
3. Puncture biopsy of the kidney, prostate, testicle. Cytological diagnostics of bladder tumors.

### Topic 2. X-ray, radioisotope, ultrasound research methods in urology. Urodynamics.


The form of the exercise is a practical lesson.

#### Questions on the topic for discussion in class:

1. X-ray anatomy of the kidneys and urinary tract.
2. Survey urography. Formation of simulating calculi of the organs of the system.
3. Excretory urography. Indications and contraindications. Infusion urography, compression. Retrograde pyelography. Antegrade pyelography.
4. Pelvic-renal refluxes: pyelophobic, pyelotubular, pyelovenous.
5. Descending and retrograde cystography. Pneumocystography (sedimentary cystogram), vocal cystogram.
6. Pneumoren. Pneumoretroperitoneum. Indications, risks of complications.
7. Urethrography descending, ascending. Indications, contraindications, complications. Genitography.

### Self-Study Questions:

1. Preparing the patient for X-ray examination.
2. Classification of contrast agents.
3. Angiography: renal, translumbar, transfemoral. Venokavagraphy. Pelvic phlebography.
4. Scanning of kidneys, lymph nodes, bones.
5. Ultrasound, CTG, NMR in urology.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

Section 2. Abnormalities of the urinary system. Damage to the organs of the genitourinary system

Topic 3. Abnormalities of the urinary system.

The form of the exercise is a practical lesson.

**Questions on the topic for discussion in class:**

Kidney anomalies. Diagnostic methods: palpation, functional tests, excretory urography, angiography. Types of kidney anomalies: number anomalies - aplasia, hypoplasia, third accessory kidney, double kidney with splitting and doubling of the ureter; position anomalies - homolateral dystopia (pelvic, ileal, lumbar, thoracic), heterolateral dystopia (with fusion, without fusion), anomalies in the relationship of fusion kidneys - symmetric (horseshoe kidneys, bisque kidneys), asymmetric (L-shaped, C-shaped), structural anomalies - polycystic kidneys, solitary cysts, multicystic kidneys, abnormalities in the structure of the medulla.

1. Anomalies of the ureters: achalasia, ureterocele, ectopia.
2. Anomalies of the bladder. Diagnostic methods. Types of bladder abnormalities: exstrophy, diverticula, double bladder, fistulas of the urinary duct.
3. Abnormalities of the male urethra. Diagnostic methods: examination, urethrography. Types of anomaly: urethral atresia, paraurethral passages, hypospadias (capitate, scrotal, perineal, total), epispadias.

**Self-study questions:**

1. Surgical treatments for epispadias.
2. Surgical treatments for hypospadias.
3. Differential diagnosis

Topic 4. Damage to the organs of the genitourinary system.


The form of the exercise is a practical lesson.

Questions on the topic for discussion in class:

1. Kidney injury. Closing and opening kidney damage. Pathogenesis. Classification. Isolated and combined damage. Symptomatology for various kidney injuries. Early complications. Diagnostics. The value of determining the functional state of the contralateral kidney. Excretory urography, retrograde pyelography and antiography for kidney injury.

Treatment: conservative and operative, indications. Possible late complications / pyelonephritis, arteriovenous fistula formation, pedunculitis, sclerosing periureteritis, hydronephrotic transformation, nephrolithiasis /.

2. Injury of the bladder. Pathogenesis of extraperitoneal ruptures of the bladder. Combined injury. Classification of bladder injuries. Diagnostic value of 2-phase cystography and excretory urography. Treatment of intraperitoneal bladder rupture. Symptomatology, diagnosis, treatment. The importance of drainage of the bladder and paravesical space. Damage to the bladder during childbirth, gynecological operations, instrumental examinations. Diagnostics. Treatment.
3. Trauma to the urethra. Pathogenesis. The mechanism of injury. Simple and combined damage. Pathological anatomy. Clinical symptomatology. Diagnostics. The value of urethrography. Indications for the primary suture of the urethra.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

4. The importance of drainage of the bladder and urohematoma. Consequences of urethral trauma: early and late complications. Urethral structures, their diagnosis and treatment. The role of Holtsov, Solovov, Fronshtein, Vishnevsky in the development of operative urology of post-traumatic injuries of the urethra.
5. Injury to the organs of the scrotum. Open and closed. Clinical symptomatology. Organ-preserving nature of surgical treatment.
6. Injury to the penis. The clinical picture. Treatment.

Self-study questions:

1. Damage to the ureters: during instrumental studies, during operations. Pathogenesis. Clinical symptomatology. Diagnostics. Treatment. Complications and their treatment.
2. Drainage of the small pelvis according to Mac Warter-Buyalsky.

### **Section 3. Inflammatory diseases of the urinary system.**

#### **Topic 5. Non-specific inflammatory diseases of the urinary systems.**

**The form of the exercise is a practical lesson.**

**Questions on the topic for discussion in class:**

1. Etiology and pathogenesis of acute pyelonephritis. Pathogens. Penetration routes. N.A. Lopatkin's classification.
2. Symptoms: pain, increased thaw temperature, chills, dysuria.
3. Diagnosis: palpation of the kidneys, tingling symptom, bacteriuria, leukocyturia. X-ray signs of acute pyelonephritis.
4. Purulent pyelonephritis: apostematous pyelonephritis, kidney carbuncle, abscess, pyonephrosis.
5. Treatment of pyelonephritis: conservative, operative.
6. Cystitis. Etiology, pathogenesis. Classification. Ways of penetration of infection into the bladder: urethral - ascending, renal - descending, lymphogenous and hematogenous. Types of infection: non-specific, specific. Factors contributing to the onset of cystitis: local and general. Symptoms, course, diagnostics. Treatment. Prevention.

Self-study questions:


1. Differential diagnosis of acute, serous and purulent pyelonephritis.
2. Diagnostic value of cells, Sterneimer-Malbin, active leukocytes.

**Topic 6. Specific inflammatory diseases of the urinary system.**

**The form of the exercise is a practical lesson.**

**Questions on the topic for discussion in class:**

1. Tuberculosis of the kidneys and urinary tract. Etiology, pathogenesis. Pathological anatomy.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

2. Symptoms of kidney tuberculosis. The main forms of the clinical course of renal tuberculosis: (hematuric; renal colic; chronic cystitis; chronic pyelonephritis).

3. Clinical and radiological forms of renal tuberculosis: absence of destruction, "parenchymal" or infiltrative tuberculosis, initial destruction (papillary tuberculosis, small cavities, far-reaching destruction), polycavernous tuberculosis, tuberculous pyonephrosis, mistletoed kidney.

4. Diagnosis of renal tuberculosis. The need for active preventive examinations for early detection of renal tuberculosis. Clinical diagnostic methods, history, examination, palpation. Laboratory diagnostic methods (general urine analysis, urine cultures, bioassays, provocative tuberculin tests). Endoscopic methods: cysto and chromocystoscopy, biopsy. X-ray research methods.

5. Treatment. Conservative treatment. Surgical treatment: nephroureterectomy, kidney resection, cavernotomy, cavernotomy, plastic surgery for posttuberculous ureteral stenosis and bladder wrinkling.

#### **Self-study questions:**

1. Active prophylactic methods of examination for early detection of renal tuberculosis.
2. Pathogenesis of genital tuberculosis. Symptomatology, clinical manifestations. The relationship of renal tuberculosis and genital organs.


### **Section 4 Urolithiasis. Hydronephrosis, ureterohydronephrosis.**

#### **Topic 7. Urolithiasis.**

**The form of the exercise is a practical lesson.**

#### **Questions on the topic for discussion in class:**

1. The theory of stone formation. The theory of violation of colloid-crystalloid equilibrium. The theory of congenital and acquired enzymopathies. Matrix theory.
2. Factors contributing to stone formation. Exo and endogenous factors in the etiology of urolithiasis. Climate, dietary habits, the role of drinking water. Hypovitaminosis A and D. The role of the parathyroid glands in the regulation of calcium-phosphorus metabolism. Bone trauma, osteomyelitis, osteoporosis, prolonged physical inactivity. The role of local factors: impaired passage of urine, urinary tract infection, impaired renal microcirculation.
3. Characteristics of stones in terms of shape, location and chemical composition. X-ray optical properties of calculi.
4. Clinical manifestations. Pathogenesis of renal colic, hematuria in urolithiasis. The clinical picture of renal colic.
5. Laboratory, instrumental research methods. X-ray research methods.
6. Treatment. Treatments for renal colic. The likelihood of spontaneous passage of calculi. Treatment. Direction for the expulsion of small stones. Litholysis of urate stones with citrates. Endoscopic methods of extraction and crushing of calculi. Bringing down the calculi Dormius, Zeiss. Percutaneous puncture lithotripsy and lithoextraction for kidney stones. Remote lithotripsy.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

7. Indications for surgical treatment for urolithiasis: routinely, urgently. Anatomical rationale for surgical approaches to the kidney, various parts of the ureter, types of surgical interventions.
8. Bladder stones. Etiology. Clinic. Diagnostics. Treatment. Self-study questions:
  1. Differential diagnosis of renal colic with surgical diseases.

### **Topic 8. Hydronephrosis, ureterohydronephrosis**

**The form of the exercise is a practical lesson. Questions on the topic for discussion in class:**

1. Etiology and pathogenesis.
2. Pathological anatomy.
3. Classification.
4. Clinical course.
5. Modern diagnostic methods (excretory urography, radioisotope renography, scanning, renal angiography).

#### **Self-study questions:**

1. Surgical treatment of hydronephrosis: plastic surgery, nephrectomy. Indications. Types of plastic surgery. Prevention of hydronephrosis.

### **Section 5. Tumors of the genitourinary system.**


#### **Topic 9. Kidney tumors**

**The form of the exercise is a practical lesson.**

**Questions on the topic for discussion in class:**

1. Etiology of malignant neoplasms. The histological structure of kidney tumors. Benign renal tumors (adenoma, lipoma, fibroma). Malignant renal tumors (adenocarcinoma, sarcoma, Wilms' mixed tumor). Benign papilloma, angioma and malignant tumors (papillary carcinoma, squamous cell carcinoma, epidermoid carcinoma) of the renal pelvis. Modern classification of the kidneys using the TMM system. Hematogenous spread of kidney tumors and the most frequent localization of metastases.
2. Symptomatology. Early "atypical" signs (permanent microhematuria, cylinduria, erythrocytosis, leukocytosis, hyperpyrexia, arterial hypertension, progressive weakness, poor sleep and appetite, etc.). The classic triad of symptoms (hematuria, pain, palpable swelling). Features of hematuria, its cause. Symptoms of hematuria, its cause. Symptoms of "varicocele", "jellyfish head" and prerequisites for the occurrence. Features of papillary cancer of the pelvis and ureters.
3. The role of cystoscopy in the diagnosis of the source of hematuria. Radioisotope methods for the diagnosis of kidney tumor and its metastases. Place and significance of ultrasound - scanning in the diagnosis of kidney masses. X-ray diagnostics: excretory urography, retrograde pyelography. The value of computed tomography in the diagnosis of kidney cancer and its metastases. Diagnostic capabilities of renal angiography. Kidney cancer embolization therapy.

#### **Self-study questions:**

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

1. Types of operations for hypernephroid renal cancer and papillary cancer of the pelvis. 2. Pre - and postoperative X-ray and radiotherapy. Results, advantages and disadvantages of radiation therapy for renal tumors.
3. Chemotherapy of a tumor, its metastases. Hormone therapy. Prognosis of operated patients.

### **Topic 10. Tumors of the bladder**

**The form of the exercise is a practical lesson.**

#### **Questions on the topic for discussion in class:**

1. Tumors of the bladder. Etiology and pathogenesis. Pathological anatomy. Classification by histological structure. Benign and malignant tumors: atypical papillary fibroepithelioma, papillary cancer, solid cancer, glandular cancer, chorionepithelioma.
2. Classification of bladder cancer by stages, adopted by the International Union of Antitumor Ways of spread and metastasis of bladder cancer.
3. Symptoms and clinical course. Dependence of the clinical picture of the disease on the type of tumor, the nature of its growth and localization.
4. Diagnostics. The value of cystoscopy in determining the type, location and degree of infiltrating tumor growth. Cytological examination of urine sediment. Excretory urography, descending cystography, ascending cystography: combination of cystography with pericystography and tomography, polycystography, polypositional cystography. Direct and radioisotope lymphoangiadenography in the diagnosis of bladder tumor metastases in the lymph nodes. Diagnostic capabilities of ultrasound - scanning, computed tomography in determining the depth of invasion of the bladder tumor.
5. Treatment. Surgical methods for the treatment of bladder tumors: resection of the bladder with or without ureterocystoanastomosis, with removal of the affected regional lymph nodes, cystectomy with ureterosigmoidoplasty, other methods of urine diversion.

#### **Self-study questions:**


1. Application of laser technology in the treatment of bladder cancer.
2. Radiation therapy as an adjunct to the surgical method of treating patients with bladder tumors.
3. Chemotherapy. The value of intravesical chemotherapy using antitumor antibiotics of the adriamycin group.
4. The place of endoscopic surgery in the treatment of bladder cancer and the indications for it.

### **Topic 11. Adenoma of the prostate gland.**

**The form of the exercise is a practical lesson.**

#### **Questions on the topic for discussion in class:**

1. Adenoma of the prostate gland. Etiology, pathogenesis. Pathological anatomy. Classification.
2. Pathogenesis of the stages of the course of prostate adenoma. Clinical manifestations of the disease in various stages. Pathological changes that occur in the urinary tract during the development of prostate adenoma. The concept of bladder obstruction.
3. Diagnostics. Anamnesis. Digital rectal examination. X-ray diagnostic methods - excretory urography, cystography according to Kneise-Schober. The role of percutaneous and transrectal ultrasound in the diagnosis of the condition of the prostate gland.
4. Complications of prostate adenoma: acute urinary retention, hemorrhage, pyelonephritis, bladder stones, chronic renal failure.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

5. Conservative treatment. Surgical treatment: advantages and disadvantages of the method. One-stage and two-stage adenectomy. Indications and contraindications for adenectomy. Transurethral electroresection of prostate adenoma. Complications and their prevention.

**Self-study questions:**

1. Differential diagnosis of prostate adenoma (chronic prostatitis, prostate cancer, urethral stricture, bladder tumor, bladder stones, bladder neck sclerosis).

**Topic 12. Prostate cancer.**

**The form of the exercise is a practical lesson.**

**Questions on the topic for discussion in class:**

1. Prostate cancer. Etiology and pathogenesis. Pathological anatomy. Disease stages depending on the degree of tumor invasion of the prostate capsula and metastasis according to the TNM classification.
2. Ways of metastasis. Anamnesis, digital examination, prostate biopsy. X-ray diagnostics. The value of ultrasound in the diagnosis and dynamic monitoring of the course of prostate cancer.
3. Indications for surgical treatment: transurethral and transvesical electroresection prostatectomy, cryosurgery of the prostate. Castration, testicular enucleation.
5. Conservative treatment methods. Estrogen therapy. Radiation therapy. Primary and secondary tumor resistance to estrogens. Immediate and long-term results of treatment.

**Self-study questions:**

1. Differential diagnosis of prostate cancer (prostate adenoma, prostate stones, chronic prostatitis, prostate tuberculosis, bladder cancer).
2. The role of preventive examinations of the population for the early diagnosis of prostate cancer.

**Topic 12. Testicular tumors.**

**The form of the exercise is a practical lesson.**

**Questions on the topic for discussion in class:**

1. Testicular tumor. Pathological anatomy and classification. Modern methods for the diagnosis of testicular tumors and their metastases. Modern methods of treatment. Surgical, X-ray therapy, chemotherapy.


**Topic 13. Cancer of the penis.**

**The form of the exercise is a practical lesson.**

**Questions on the topic for discussion in class:**

1. Cancer of the penis .. Pathological anatomy and classification. Modern methods for the diagnosis of penile cancer and their metastases. Modern methods of treatment. Surgical, X-ray therapy, chemotherapy.



Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

Self-study questions:

1. Differential diagnosis of penile cancer (chronic penile ulcer, genital warts, balanoposthitis, chancre, cicatricial phimosis).
2. The role of preventive examinations of the population for the early diagnosis of penile cancer.

## **Section 6. Arterial nephrogenic hypertension. OPN, CPN.**

### **Topic 14. Nephrogenic arterial hypertension.**

The form of the exercise is a practical lesson.

Questions on the topic for discussion in class:

1. Types of nephrogenic hypertension: parenchymal, vasorenal. Etiology and pathogenesis of renovascular hypertension. Place and conditions of renin formation in the kidneys.
2. Clinical course and symptomatology of nephrogenic hypertension.
3. Diagnostics. Excretory urography, renography, indirect renal angiography. Angiotensive, captopril tests. Renal angiography is the main method for diagnosing renovascular hypertension. Separate determination of renin activity in blood from kidney veins and its role in the diagnosis of hypertension.
4. Treatment: conservative, operative.

Self-study questions:

1. Morphological changes in the renal artery and its branches, leading to arterial hypertension (atherosclerosis, fibromuscular dysplasia, aneurysms, arteriovenous fistula, renal artery thrombosis, kidney infarction, etc.). The role of nephroptosis in the development of renovascular hypertension.
2. Chronic pyelonephritis, glomerulonephritis, etc. - causes of hypertension. Pathogenesis. Secondary lesion of the renal artery in pyelonephritis. Shrunken kidney as a source of hypertension

### **Topic 15. Acute renal failure.**


**The form of the exercise is a practical lesson.**

**Questions on the topic for discussion in class:**

1. Acute renal failure. Etiology. Pathogenesis. Pathological changes in the kidneys.
2. Stages of acute renal failure and their characteristics - stage of shock, stage of oligoanuria, stage of polyuria, stage of recovery. 3. Treatment by stage of the disease.

Self-study questions:

1. Hemodialysis with an "artificial kidney" apparatus - indications, principle of operation. Application of peritoneal, gastric, intestinal dialysis, hemofiltration, hemodiafiltration, separate ultrafiltration, hemosorption, plasmapheresis, plasmatorption.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

### **Topic 16. Chronic renal failure.**

**The form of the exercise is a practical lesson.**

**Questions on the topic for discussion in class:**

1. Chronic renal failure. Etiology and pathogenesis, stages and forms of clinical course.
2. Clinic, diagnostics. Conservative treatment. Surgical treatment of patients in the terminal stage of chronic renal failure. Indications for hemodialysis, peritoneal dialysis.

Self-study questions:

1. Kidney transplant. Indications for kidney transplantation. Recipient preparation. Donor selection. Postoperative management, modern immunosuppressive drugs.

### **Section 7. Anatomy and physiology of the male reproductive system.**

**Topic 17. Anatomy of the male reproductive system.**

**The form of the exercise is a practical lesson.**

**Questions on the topic for discussion in class:**

1. Anatomy of the penis, urethra;
2. Anatomy of the accessory gonads: the prostate gland, seminal vesicles, bulbourethral glands, paraurethral glands.
3. Anatomy of the scrotum and its organs: testicle, epididymis, spermatic cord.
4. Anatomy of the vas deferens, the ejaculatory duct. Anatomy of testis hydatids, epididymis and ducts.

**Topic 18. Physiology of the male reproductive system.**

**The form of the exercise is a practical lesson.**

**Questions on the topic for discussion in class:**

1. The structure and function of the male reproductive system.
2. The central level of regulation of the male reproductive system.
3. Peripheral and tissue levels of regulation of the male reproductive system.

Self-study questions:


1. Hormonal control and cytological characteristics of spermatogenesis.
2. Hormonal control of spermatogenesis and its interaction with Sertoli and Leydig cells.

**Topic 19. Methods of examination of andrological patients.**

**The form of the exercise is a practical lesson.**

**Questions on the topic for discussion in class:**

1. Complaints, anamnesis, examination.
2. Laboratory diagnostics: biochemical analysis of seminal plasma, studies of PSA levels, blood acid phosphatase, hormonal studies.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

3. Instrumental diagnostics: ultrasound of the organs of the scrotum and the prostate vesicular complex, X-ray techniques (cavernosometry and cavernosography, MRI), diagnostic andrological operations. Assessment of sexual development in boys. Self-study questions:

1. Questionnaires and questionnaires: the sexual formula of men, the international index of erectile function, the scale for the quantitative assessment of male copulatory function (ICF), their role in assessing the sexual status of men.

### **Section 8. Psychology and physiology of human sexual life.**

#### **Topic 20. Physiology and psychology of sexual intercourse.**

**The form of the exercise is a practical lesson.**

Questions on the topic for discussion in class:

1. Sex drive (libido)
2. Erection
3. Ejaculation
4. Orgasm

Self-study questions:

1. Features of the sexual cycle of men and women.

#### **Topic 21. Sexual disorders in men.**

**The form of the exercise is a practical lesson.**

**Questions on the topic for discussion in class:**

1. Erectile dysfunction. Etiology, pathogenesis, diagnosis, treatment.
2. Disorders of ejaculation. Classification. Diagnostics. Treatment.

Self-study questions:

1. Peyronie's disease
2. Priapism
3. Surgical sex reassignment.


### **Section 9. Male infertility.**

#### **Topic 22. Male infertility. Etiology, pathogenesis, diagnosis. Other diseases of the male genital organs.**

The form of the exercise is a practical lesson.

Questions on the topic for discussion in class:

1. Causes and classification of male infertility.
2. Algorithm and diagnostic methods.
3. Infections of the genitals.
4. Varicocele.
5. Endocrine infertility.
6. Immune infertility.
7. Chromosomal pathology.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

Self-study questions:

1. Other diseases of the male genital organs: dropsy of the membranes of the testicle, cyst of the spermatic cord, seminal cyst, cyst of the epididymis, oleogranuloma of the penis leading to male infertility.
2. Spermatogenesis, pathospermia.

### **Topic 23. Treatment of male infertility.**

**The form of the exercise is a practical lesson.**

**Questions on the topic for discussion in class:**

1. Conservative treatments for male infertility.
2. Surgical treatments for male infertility.

The form of the exercise is a practical lesson.

Questions on the topic for discussion in class:

1. Assisted reproductive technologies in the treatment of male infertility: intracorporeal and in vitro fertilization.
2. Conservation of sperm.

### **Topic 24. Menopause disorders in men. Offset.**

The form of the exercise is a practical lesson.

Questions on the topic for discussion in class:

1. Aging and climacteric disorders in men.
2. Menopausal syndrome in men, structure and diagnosis.
3. Pathogenetic treatment of climacteric disorders.

Self-study questions:

1. Androgens and their role in the male body.


## **7. LABORATORY WORKS (LABORATORY PRACTICE)**

**This type of work is not provided for by the UP.**

## **8. TOPICS OF COURSE, CONTROL WORKS, ABSTRACTS**

Abstract topics:


1. Differential diagnosis of right-sided renal colic from acute appendicitis.
2. Cystometry, sphincterometry, uroflowmetry.
3. Puncture biopsy of the kidney, prostate, testicle. Cytological diagnostics of bladder tumors.
4. Preparation of the patient for X-ray examination.
5. Classification of contrast agents.
6. Angiography: renal, translumbar, transfemoral. Venokavagraphy. Pelvic phlebography.
7. Scanning of the kidneys, lymph nodes, bones.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

8. Ultrasound, CTG, NMR in urology.
9. Damage to the ureters: during instrumental studies, during operations. Pathogenesis. Clinical symptomatology. Diagnostics. Treatment. Complications and their treatment.
10. Drainage of the small pelvis according to Mac Warter-Buyalsky.
11. Differential diagnosis of acute, serous and purulent pyelonephritis.
12. Diagnostic value of cells, Sterneimer-Malbin, active leukocytes.
13. Active preventive examination methods for early detection of renal tuberculosis.
14. Pathogenesis of genital tuberculosis. Symptomatology, clinical manifestations. The relationship of renal tuberculosis and genital organs.
15. Types of operations for hypernephroid cancer of the kidney and papillary cancer of the pelvis.
16. Pre - and postoperative X-ray and radiotherapy. Results, advantages and disadvantages of radiation therapy for renal tumors.
17. Chemotherapy of a tumor, its metastases. Hormone therapy. Prognosis of operated patients.
18. Application of laser technology in the treatment of bladder cancer.
19. Radiation therapy as an adjunct to the surgical method of treating patients with bladder tumors.
20. Chemotherapy. The value of intravesical chemotherapy using antitumor antibiotics of the adriamycin group.
21. The place of endoscopic surgery in the treatment of bladder cancer and the indications for it.
22. Differential diagnosis of prostate adenoma (chronic prostatitis, prostate cancer, urethral stricture, bladder tumor, bladder stones, bladder neck sclerosis).
23. Differential diagnosis of prostate cancer (prostate adenoma, prostate stones, chronic prostatitis, prostate tuberculosis, bladder cancer).
24. The role of preventive examinations of the population for the early diagnosis of prostate cancer.
25. Differential diagnosis of testicular tumor (hydrocele, epididymo-orchitis, varicocele, testicular tuberculosis, hematocele, testicular cyst, torsion of the spermatic cord).
26. The role of preventive examinations of the population for the early diagnosis of testicular cancer.
27. Differential diagnosis of penile cancer (chronic ulcer of the penis, genital warts, balanoposthitis, chancre, cicatricial phimosis).
28. The role of preventive examinations of the population for the early diagnosis of penile cancer.

#### **Presentation topics:**


1. Hormonal control and cytological characteristics of spermatogenesis.
2. Hormonal control of spermatogenesis and its interaction with Sertoli and Leydig cells.
3. Questionnaires and questionnaires: the sexual formula of men, the international index of erectile function, the scale for the quantitative assessment of male copulatory function (ICF), their role in assessing the sexual status of men.
4. Features of the sexual cycle of men and women.
5. Peyronie's disease
6. Priapism
7. Surgical sex reassignment.
8. Other diseases of the male genital organs: dropsy of the testicular membranes, cyst of the spermatic cord, seminal cyst, cyst of the epididymis, oleogranuloma of the penis, leading to male infertility.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

9. Spermatogenesis, pathospermia.
10. Assisted reproductive technologies in the treatment of male infertility: intracorporeal and in vitro fertilization.
11. Preservation of sperm.
12. Androgens and their role in the male body.


### 9. List of questions for offset

1. Pain. Etiopathogenesis of renal colic. The clinical picture. Differential diagnosis of right-sided renal colic from acute appendicitis. Pain in pathology in the pelvis, ureter, bladder, prostate gland, urethra.
2. Disorders of urination - dysuria. Oligakiuria, nocturia, stranguria. Urinary incontinence (true, false). Incontinence of urine. Difficulty urinating. Acute and chronic ischuria. Paradoxical ischuria.
3. Quantitative changes in urine. Polyuria, opsuria, oliguria, anuria (prerenal, renal, postrenal). 4. Qualitative changes in urine. Urine is normal (specific gravity, hormones, trace elements, organic and inorganic compounds). Hypersthenuria. Change in color and clarity of urine. Proteinuria (true, false, glomerular, tubular, mixed). Piuria. Hematuria is macro and microscopic. Initial, total, terminal. Urethroragia, differential diagnosis with hematuria. Hemoglobinuria, myoglobinuria, cilinduria, bacteriuria, pneumaturia, licuria, hyluria, hydatiduria.
5. General clinical research methods. Examination, palpation, percussion, auscultation of urological patients.
6. Instrumental and endoscopic research methods. Charrier scale, Types of cystoscopes. Classification of catheters
7. Cystoscopy, urethroscopy. Indications, contraindications, complications (urethral fever, false course, urethral rhagia).
8. Study of urine for latent pyuria: according to Nechiporenko, Kakovsky - Addis. What is an antibioticogram?
9. Study of the functional capacity of the kidneys and bladder. Zemnitsky test. Residual nitrogen, urea, blood creatinine. Chromocystoscopy. Cystometry, sphincterometry, uroflowmetry.
10. X-ray anatomy of the kidneys and urinary tract.  
Preparing the patient for X-ray examination.
11. Survey urography. Formation of simulating calculi of the urinary system.
12. Classification of contrast agents. Excretory urography. Indications and contraindications. Infusion urography, compression. Retrograde pyelography. Antegrade pyelography.
13. Pelvic-renal refluxes: pyelophobic, pyelotubular, pyelovenous.
14. Descending and retrograde cystography. Pneumocystography (sedimentary cystogram), vocal cystogram.
15. Urethrography descending, ascending. Indications, contraindications, complications. Genitography.
16. Angiography: renal, translumbar, transfemoral. Venokavagraphy. Pelvic phlebography.
17. Scanning of kidneys, lymph nodes, bones.  
Ultrasound, CTG, NMR.
18. Kidney anomalies. Diagnostic methods: palpation, functional tests, excretory urography, angiography. Types of kidney anomalies: number anomalies - aplasia, hypoplasia, third accessory kidney, double kidney with splitting and doubling of the ureter; position anomalies - homolateral dystopia (pelvic, ileal, lumbar, thoracic), heterolateral dystopia

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		


(with fusion, without fusion), anomalies in the relationship of fusion kidneys - symmetric (horseshoe kidneys, bisque kidneys), asymmetric (L-shaped, C-shaped), structural anomalies - polycystic kidneys, solitary cysts, multicystic kidneys, abnormalities in the structure of the medulla.

19. Anomalies of the ureters: achalasia, ureterocele, ectopia.
20. abnormalities of the bladder: exstrophy, diverticula, double bladder, fistulas of the urinary duct.
21. Abnormalities of the urethra in men. Diagnostic methods: examination, urethrography. Types of anomaly: urethral atresia, paraurethral passages, hypospadias (capitate, scrotal, perineal, total), epispadias.
22. Kidney injury. Closing and opening kidney damage. Pathogenesis. Classification. Isolated and combined damage. Symptomatology for various kidney injuries. Early complications. Diagnostics. The value of determining the functional state of the contralateral kidney. Excretory urography, retrograde pyelography and antiography for kidney injury. Treatment: conservative and operative, indications. Possible late complications / pyelonephritis, arteriovenous fistula formation, pedunculitis, sclerosing periureteritis, hydronephrotic transformation, nephrolithiasis /.
23. Damage to the ureters: during instrumental studies, during operations. Pathogenesis. Clinical symptomatology. Diagnostics. Treatment. Complications and their treatment.
24. Injury of the bladder. Pathogenesis of extraperitoneal ruptures of the bladder. Combined injury. Classification of bladder injuries. Diagnostic value of 2-phase cystography and excretory urography. Treatment of intraperitoneal bladder rupture. Symptomatology, diagnosis, treatment. The importance of drainage of the bladder and paravesical space. Damage to the bladder during childbirth, gynecological operations, instrumental examinations. Diagnostics. Treatment.
25. Injury of the urethra. Pathogenesis. The mechanism of injury. Simple and combined damage. Pathological anatomy. Clinical symptomatology. Diagnostics. The value of urethrography. Indications for the primary suture of the urethra.
26. Importance of urinary bladder drainage and urohematoma. Consequences of urethral trauma: early and late complications. Urethral structures, their diagnosis and treatment. The role of Holtsov, Solovov, Fronshtein, Vishnevsky in the development of operative urology of posttraumatic injuries of the urethra.
27. Injury to the organs of the scrotum. Open and closed. Clinical symptomatology. Organpreserving nature of surgical treatment.
28. Penile trauma. The clinical picture. Treatment.
29. Etiology and pathogenesis of acute pyelonephritis. Pathogens. Penetration routes. N.A. Lopatkin's classification.
30. Symptoms: pain, fever, chills, dysuria. Diagnosis: palpation of the kidneys, tingling symptom, bacteriuria, leukocyturia, SternheimerMalbin cells, active leukocytes. X-ray signs of acute pyelonephritis.
31. Purulent pyelonephritis: apostematous pyelonephritis, kidney carbuncle, abscess, pyonephrosis.
32. Differential diagnosis of acute, serous and purulent pyelonephritis.
33. Treatment of pyelonephritis: conservative, operative.
34. Cystitis. Etiology, pathogenesis. Classification. Ways of penetration of infection into the bladder: urethral - ascending, renal - descending, lymphogenous and hematogenous. Types of infection: non-specific, specific. Factors contributing to the onset of cystitis: local and general.
35. Symptoms, course, diagnosis. Treatment. Prevention of acute cystitis.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		


36. Inflammatory diseases of the urethra, diagnosis, treatment.
  37. Inflammatory diseases of the prostate gland, diagnosis, treatment.
  38. Inflammatory diseases of the scrotum organs, diagnosis, treatment.
  39. Inflammatory diseases of the seminal vesicles and seminal tubercle, diagnosis, treatment.
  40. Inflammatory diseases of the penis, diagnosis, treatment.
  41. Tuberculosis of the kidneys and urinary tract. Etiology, pathogenesis. Pathological anatomy.
  42. Symptoms of renal tuberculosis. The main forms of the clinical course of renal tuberculosis: (hematuric; renal colic; chronic cystitis; chronic pyelonephritis).
  43. Clinical and radiological forms of renal tuberculosis: absence of destruction, "parenchymal" or infiltrative tuberculosis, initial destruction (papillary tuberculosis, small cavities, far-reaching destruction), polycavernous tuberculosis, tuberculous pyonephrosis, mistletoid.
  44. Diagnosis of renal tuberculosis. The need for active preventive examinations for early detection of renal tuberculosis. Clinical diagnostic methods, history, examination, palpation. Laboratory diagnostic methods (general urine analysis, urine cultures, bioassays, provocative tuberculin tests). Endoscopic methods: cysto and chromocystoscopy, biopsy. X-ray research methods.
  45. Treatment. Conservative treatment. Surgical treatment: nephroureterectomy, kidney resection, cavernotomy, cavernotomy, plastic surgery for post-tuberculous ureteral stenosis and bladder wrinkling.
  46. Pathogenesis of genital tuberculosis. Symptomatology, clinical manifestations. The relationship of renal tuberculosis and genital organs.
  47. The theory of stone formation. The theory of violation of colloid-crystalloid equilibrium. The theory of congenital and acquired enzymopathies. Matrix theory. Factors contributing to stone formation.
  48. Characteristics of stones in shape, localization and chemical composition. X-ray optical properties of calculi.
  49. Clinical manifestations. Pathogenesis of renal colic, hematuria in urolithiasis. The clinical picture of renal colic. Differential diagnosis with surgical diseases.
  50. Laboratory, instrumental research methods. X-ray research methods for urolithiasis.
  51. Treatment. Treatments for renal colic. The likelihood of spontaneous passage of calculi. Treatment. Direction for the expulsion of small stones. Litholysis of urate stones with citrates.
- Endoscopic methods of extraction and crushing of calculi. Bringing down the calculi Dormius, Zeiss. Percutaneous puncture lithotripsy and lithoextraction for kidney stones. Remote lithotripsy.
52. Indications for surgical treatment for urolithiasis: routinely, as an emergency. Anatomical rationale for surgical approaches to the kidney, various parts of the ureter, types of surgical interventions.
  53. Bladder stones. Etiology. Clinic. Diagnostics. Treatment.
  54. Etiology and pathogenesis. Pathological anatomy. Classification. The clinical course of hydronephrosis.
  55. Modern diagnostic methods (excretory urography, radioisotope renography, scanning, renal angiography).
  56. Surgical treatment of hydronephrosis: plastic surgery, nephrectomy. Indications. Types of plastic surgery. Prevention of hydronephrosis.
  57. Etiology of malignant neoplasms. The histological structure of kidney tumors. Benign renal tumors (adenoma, lipoma, fibroma). Malignant renal tumors (adenocarcinoma, sarcoma, Wilms' mixed tumor). Benign papilloma, angioma and malignant tumors (papillary




Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

carcinoma, squamous cell carcinoma, epidermoid carcinoma) of the renal pelvis. Modern classification of the kidneys using the TMM system. Hematogenous spread of kidney tumors and the most frequent localization of metastases.

58. Symptomatology. Early "atypical" signs (permanent microhematuria, cylinduria, erythrocytosis, leukocytosis, hyperpyrexia, arterial hypertension, progressive weakness, poor sleep and appetite, etc.). The classic triad of symptoms (hematuria, pain, palpable swelling). Features of hematuria, its cause. Symptoms of hematuria, its cause. Symptoms of "varicocele", "jellyfish head" and prerequisites for the occurrence. Features of papillary cancer of the pelvis and ureters.
59. The role of cystoscopy in the diagnosis of the source of hematuria. Radioisotope methods for the diagnosis of kidney tumor and its metastases. Place and significance of ultrasound - scanning in the diagnosis of kidney masses. X-ray diagnostics: excretory urography, retrograde pyelography. The value of computed tomography in the diagnosis of kidney cancer and its metastases. Diagnostic capabilities of renal angiography. Kidney cancer embolization therapy.
60. Types of operations for hypernephroid renal cancer and papillary cancer of the pelvis. Pre - and postoperative X-ray and radiotherapy. Results, advantages and disadvantages of radiation therapy for renal tumors. Chemotherapy of a tumor, its metastases. Hormone therapy. Prognosis of operated patients.
61. Tumors of the bladder. Etiology and pathogenesis. Pathological anatomy. Classification by histological structure. Benign and malignant tumors: atypical papillary fibroepithelioma, papillary cancer, solid cancer, glandular cancer, chorionepithelioma.
62. Classification of urinary bladder cancer by stages, adopted by the International Union of Antitumor. Ways of spread and metastasis of bladder cancer.
63. Symptoms and clinical course. Dependence of the clinical picture of the disease on the type of tumor, the nature of its growth and localization.
64. Diagnostics. The value of cystoscopy in determining the type, location and degree of infiltrating tumor growth. Cytological examination of urine sediment. Excretory urography, descending cystography, ascending cystography: combination of cystography with pericystography and tomography, polycystography, polypositional cystography. Direct and radioisotope lymphoangiadenography in the diagnosis of bladder tumor metastases in the lymph nodes. Diagnostic capabilities of ultrasound - scanning, computed tomography in determining the depth of invasion of the bladder tumor.
65. Treatment. Surgical methods for the treatment of bladder tumors: resection of the bladder with or without ureterocystoanastomosis, with removal of the affected regional lymph nodes, cystectomy with ureterosigmoidoplasty, other methods of urine diversion. The use of laser technology in the treatment of bladder cancer. Radiation therapy as an additional method of treatment for patients with bladder tumors. Chemotherapy. The value of intravesical chemotherapy using antitumor antibiotics of the adriamycin group. The place of endoscopic surgery in the treatment of bladder cancer and the indications for it.
66. Adenoma of the prostate gland. Etiology, pathogenesis. Pathological anatomy. Classification.
67. Pathogenesis of the stages of the course of prostate adenoma. Clinical manifestations of the disease in various stages. Pathological changes that occur in the urinary tract during the development of prostate adenoma.
68. Diagnostics. Anamnesis. Digital rectal examination. X-ray diagnostic methods - excretory urography, cystography according to Kneise-Schober. The role of percutaneous and transrectal ultrasound in the diagnosis of the condition of the prostate gland.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

69. Differential diagnosis of prostate adenoma (chronic prostatitis, prostate cancer, urethral stricture, bladder tumor, bladder stones, bladder neck sclerosis).
70. Complications of prostate adenoma: acute urinary retention, hemorrhage, pyelonephritis, bladder stones, chronic renal failure.
71. Conservative treatment. Surgical treatment: advantages and disadvantages of the method. One-stage and two-stage adenectomy. Indications and contraindications for adenectomy. Transurethral electroresection of prostate adenoma. Complications and their prevention.
72. Prostate cancer. Etiology and pathogenesis. Pathological anatomy. Disease stages depending on the degree of tumor invasion of the prostate capsula and metastasis according to the TNM classification.
73. Ways of metastasis. Anamnesis, digital examination, prostate biopsy. X-ray diagnostics. The value of ultrasound in the diagnosis and dynamic monitoring of the course of prostate cancer.
74. Differential diagnosis (prostate adenoma, prostate stones, chronic prostatitis, prostate tuberculosis, bladder cancer).
75. Indications for surgical treatment: transurethral and transvesical electroresection prostatectomy, cryosurgery of the prostate. Castration, testicular enucleation.
76. Conservative methods of treatment. Estrogen therapy. Radiation therapy. Primary and secondary tumor resistance to estrogens. Immediate and long-term results of treatment. The role of preventive examinations of the population.
77. Testicular tumor. Pathological anatomy and classification. Modern methods for the diagnosis of testicular tumors and their metastases. Modern methods of treatment. Surgical, X-ray therapy, chemotherapy.
78. Cancer of the penis .. Pathological anatomy and classification. Modern methods for the diagnosis of penile cancer and their metastases. Modern methods of treatment. Surgical, X-ray therapy, chemotherapy.
79. Types of nephrogenic hypertension: parenchymal, vasorenal. Etiology and pathogenesis of renovascular hypertension. Place and conditions of renin formation in the kidneys.
80. Morphological changes in the renal artery and its branches, leading to arterial hypertension (atherosclerosis, fibromuscular dysplasia, aneurysms, arteriovenous fistula, renal artery thrombosis, kidney infarction, etc.). The role of nephroptosis in the development of renovascular hypertension.
81. Chronic pyelonephritis, glomerulonephritis and others - causes of hypertension. Pathogenesis. Secondary lesion of the renal artery in pyelonephritis. A shriveled kidney as a source of hypertension.
82. Clinical course and symptomatology of nephrogenic hypertension.
83. Diagnostics. Excretory urography, renography, indirect renal angiography. Angiotensive, captopril tests. Renal angiography is the main method for diagnosing renovascular hypertension. Separate determination of renin activity in blood from kidney veins and its role in the diagnosis of hypertension.
84. Treatment of nephrogenic hypertension is conservative and operative.
85. Acute renal failure. Etiology. Pathogenesis. Pathological changes in the kidneys.
86. Stages of acute renal failure and their characteristics - stage of shock, stage of oligoanuria, stage of polyuria, stage of recovery.
87. Treatment by stages of the disease. Hemodialysis with an artificial kidney apparatus - indications, principle of operation. Application of peritoneal, gastric, intestinal dialysis,


Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

hemofiltration, hemodiafiltration, separate ultrafiltration, hemosorption, plasmapheresis, plasmadsorption.

88. Chronic renal failure. Etiology and pathogenesis, stages and forms of clinical course.
89. Clinic, diagnostics. Conservative treatment. Surgical treatment of patients in the terminal stage of chronic renal failure. Indications for hemodialysis, peritoneal dialysis.
90. Kidney transplantation. Indications for kidney transplantation. Recipient preparation. Donor selection. Postoperative management, modern immunosuppressive drugs.
91. Anatomy of the male reproductive system. Anatomy of the penis, urethra.  
Anatomy of the accessory gonads: the prostate gland, seminal vesicles, bulbourethral glands, paraurethral glands.  
Anatomy of the scrotum and its organs: testicle, epididymis, spermatic cord.  
Anatomy of the vas deferens, ejaculatory duct. Anatomy of testis hydatids, epididymis and ducts.
92. Physiology of the male reproductive system. The structure and function of the reproductive system.  
The central level of regulation of the male reproductive system.  
Peripheral and tissue levels of regulation of the male reproductive system.  
Hormonal control and cytological characteristics of spermatogenesis.  
Hormonal control of spermatogenesis and its interaction with Sertoli and Leydig cells.
93. Methods of examination of andrological patients. Complaints, history taking, examination.  
Questionnaires and questionnaires: sexual formula of men, international index of erectile function, scale of quantitative assessment of male copulatory function (ICF).  
Laboratory diagnostics: biochemical analysis of seminal plasma, studies of PSA levels, blood acid phosphatase, hormonal studies.  
Instrumental diagnostics: ultrasound of the scrotum and prostate-vesicular complex, X-ray techniques (cavernosometry and cavernosography, MRI), andrological diagnostic operations.  
Assessment of sexual development in boys.
94. Physiology and psychology of sexual intercourse. Sex drive (libido). Erection. Ejaculation. Orgasm.
95. Sexual disorders in men. Erectile dysfunction. Etiology, pathogenesis, diagnosis, treatment. Ejaculation disorders. Classification. Diagnostics. Treatment.
96. Male infertility. Etiology, pathogenesis, diagnosis. Other diseases of the male genital organs. Causes and classification of male infertility. Algorithm and diagnostic methods. Genital infections. Varicocele. Endocrine infertility. Immune infertility. Chromosomal pathology. Other diseases of the male genital organs: dropsy of the membranes of the testicle, cyst of the spermatic cord, seminal cyst, cyst of the epididymis, oleogranuloma of the penis.
97. Treatment of male infertility. Conservative treatments for male infertility.  
Surgical treatments for male infertility.  
Assisted reproductive technologies in the treatment of male infertility: intracorporeal and in vitro fertilization.  
Sperm preservation.
98. Menopause disorders in men. Androgens and their role in the male body.  
Aging and climacteric disorders in men.  
Menopause syndrome in men, structure and diagnosis. Pathogenetic treatment of climacteric disorders.


## 10. INDEPENDENT WORK OF STUDENTS

Full-time form of education

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		


<b>Title of sections and topics</b>	<b>Independent work type</b>	<b>Volume in hours</b>	<b>form of control</b>
<p><b>Section 1: Symptomatology and semiotics of urological diseases</b></p> <p><b>Topics:</b></p> <p>1. Differential diagnosis of right-sided</p>	Writing an essay, working out educational material	2	Review of the abstract, assessment of the oral answer


<p>renal colic from acute appendicitis.</p> <p>2. Cystometry, sphincterometry, uroflowmetry.</p> <p>3. Puncture biopsy of the kidney, prostate, testicle. Cytological diagnostics of bladder tumors.</p> <p>4. Preparation of the patient for X-ray examination.</p> <p>5. Classification of contrast agents.</p> <p>6. Angiography: renal, translumbar, transfemoral. Venokavagrafiya. Pelvic phlebography.</p> <p>7. Scanning of the kidneys, lymph nodes, bones.</p> <p>8. Ultrasound, CTG, NMR in urology.</p>			
<p><b>Section 2. Abnormalities of the urinary system. Damage to the organs of the genitourinary system.</b></p> <p><b>Topics:</b></p> <p>1. Damage to the ureters: during instrumental studies, during operations. Pathogenesis. Clinical symptomatology. Diagnostics. Treatment. Complications and their treatment.</p> <p>2. Drainage of the small pelvis according to Mac Warter-Buyalsky.</p>	Writing an essay, working out educational material	2	Review of the abstract, assessment of the oral answer


Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

<p><b>Section 3. Inflammatory diseases of the urinary system.</b></p> <p><b>Topics:</b></p> <ol style="list-style-type: none"> <li>1. Differential diagnosis of acute, serous and purulent pyelonephritis.</li> <li>2. Diagnostic value of cells, SterneimerMalbin, active leukocytes.</li> <li>3. Active preventive examination methods for early detection of renal tuberculosis.</li> <li>4. Pathogenesis of genital tuberculosis. Symptomatology, clinical manifestations. The relationship of renal tuberculosis and genital organs.</li> </ol>	Writing an essay, working out educational material	2	Review of the abstract, assessment of the oral answer
--	--	---	---

<p><b>Section 4 Urolithiasis. Hydronephrosis, ureterohydronephrosis.</b></p> <p><b>Topics:</b></p> <ol style="list-style-type: none"> <li>1. Differential diagnosis of renal colic with surgical diseases.</li> <li>2. Surgical treatment of hydronephrosis: plastic surgery, nephrectomy. Indications. Types of plastic surgery. Prevention of hydronephrosis.</li> </ol>	Writing an essay, working out educational material	2	Review of the abstract, assessment of the oral answer
--	--	---	---


Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма		
Ф - Рабочая программа дисциплины			
<p><b>Section 5. Tumors of the genitourinary system.</b></p> <p><b>Topics:</b></p> <ol style="list-style-type: none"> <li>1. Types of operations for hypernephroid renal cancer and papillary cancer of the pelvis.</li> <li>2. Pre - and postoperative X-ray and radiotherapy. Results, advantages and disadvantages of radiation therapy for renal tumors.</li> <li>3. Chemotherapy of a tumor, its metastases. Hormone therapy. Prognosis of operated patients.</li> <li>4. Application of laser technology in the treatment of bladder cancer.</li> <li>5. Radiation therapy as an adjunct to the surgical method of treating patients with bladder tumors.</li> <li>6. Chemotherapy. The value of intravesical chemotherapy using antitumor antibiotics of the adriamycin group.</li> <li>7. The place of endoscopic surgery in the treatment of bladder cancer and the indications for it.</li> <li>8. Differential diagnosis of prostate adenoma (chronic prostatitis, prostate cancer, urethral stricture, bladder tumor, bladder stones, bladder neck sclerosis).</li> <li>9. Differential diagnosis of prostate cancer (prostate adenoma, prostate stones, chronic prostatitis, prostate tuberculosis, bladder cancer).</li> <li>10. The role of preventive examinations</li> </ol>	Writing an essay, working out educational material	2	Review of the abstract, assessment of the oral answer

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма			
Ф - Рабочая программа дисциплины				
<p>of the population for the early diagnosis of prostate cancer.</p> <p>11. Differential diagnosis of testicular tumor (hydrocele, epididymo-orchitis, varicocele, testicular tuberculosis, hematocele, testicular cyst, torsion of the spermatic cord).</p> <p>12. The role of preventive examinations of the population for early diagnosis of testicular cancer.</p> <p>13. Differential diagnosis of penile cancer (chronic ulcer of the penis, genital warts, balanoposthitis, chancre, cicatricial phimosis).</p> <p>14. The role of preventive examinations of the population for the early diagnosis of penile cancer.</p>				
<p><b>Section 6. Arterial and nephrogenic hypertension. Surge arrester, KhPN</b></p> <p><b>Topics:</b></p> <p>1. Morphological changes in the renal artery and its branches, leading to arterial hypertension (atherosclerosis, fibromuscular dysplasia, aneurysms, arteriovenous fistula, renal artery thrombosis, kidney infarction, etc.). The role of nephroptosis in the development of renovascular hypertension.</p> <p>2. Chronic pyelonephritis, glomerulonephritis and others - causes of hypertension. Pathogenesis. Secondary lesion of the renal artery in pyelonephritis. Shrunken kidney as a source of hypertension</p> <p>3. Hemodialysis with an "artificial kidney" apparatus - indications, principle of operation. Application of peritoneal, gastric, intestinal dialysis, hemofiltration, hemodiafiltration, separate ultrafiltration, hemosorption, plasmapheresis,</p>	Writing an essay, working out educational material	2	Review of the abstract, assessment of the oral answer	

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

<p>plasmadsorption.</p> <p>4. Kidney transplantation. Indications for kidney transplantation. Recipient preparation. Donor selection. Postoperative management, modern immunosuppressive drugs.</p>			
<p><b>Section 7. Anatomy and physiology of the male reproductive system.</b></p> <p><b>Topics:</b></p> <p>1. Hormonal control and cytological characteristics of spermatogenesis.</p> <p>2. Hormonal control of spermatogenesis and its interaction with Sertoli and Leydig cells.</p> <p>3. Questionnaires and questionnaires: the sexual formula of men, the international index of erectile function, the scale for the quantitative assessment of male copulatory function (ICF), their role in assessing the sexual status of men.</p>	Report	2	Presentation of the report, its discussion
<p><b>Section 8. Psychology and physiology of human sexual life</b></p> <p><b>Topics:</b></p> <p>1. Features of the sexual cycle of men and women.</p> <p>2 .. Peyronie's disease</p> <p>3. Priapism</p> <p>4. Surgical sex reassignment.</p>	Report	2	Presentation of the report, its discussion



Министерство науки и высшего образования РФ Ульяновский государственный университет		Форма		
Ф - Рабочая программа дисциплины				
<b>Section 9. Male infertility.</b>  <b>Topics:</b> 1. Other diseases of the male genital organs: dropsy of the membranes of the testicle, cyst of the spermatic cord, seminal cyst, cyst of the epididymis, oleogranuloma of the penis leading to male infertility. 2. Spermatogenesis, pathospermia.	Report	2	Presentation of the report, its discussion	
	3. Assisted reproductive technologies in the treatment of male infertility: intracorporeal and in vitro fertilization. 4. Preservation of sperm. 5. Androgens and their role in the male body.			

## 11. EDUCATIONAL-METHODOLOGICAL AND INFORMATION SUPPORT OF THE DISCIPLINE


Main literature:

1 Андреева М. В. Diseases of the urinary tract, kidney and pregnancy = Заболевания мочевыводящих путей, почек и беременность : study guide / М. В. Андреева, Е. П. Шевцова, Ж. С. Мартинсон. - Волгоград : ВолгГМУ, 2021. - 88 с. - ISBN 9785965206308. - Текст : электронный // ЭБС "Букап" : [сайт]. - URL : <https://www.books-up.ru/ru/book/diseases-of-the-urinary-tract-kidney-and-pregnancy-13816236/>

2 Белякова Е. В. Main syndromes in nephrology = Основные синдромы в нефрологии : учебное пособие для студентов II–III курсов лечебного факультета : methodic material is recommended for medical students (II and III years) / Е. В. Белякова, Д. Н. Емельянов, В. В. Скворцов. - Волгоград : ВолгГМУ, 2022. - 72 с. - ISBN 9785965207862. - Текст : электронный // ЭБС "Букап" : [сайт]. - URL : <https://www.books-up.ru/ru/book/main-syndromes-in-nephrology-15846414/>

Additional literature:

1 Smirnova A. Yu. Basis of functional and laboratory diagnostics : textbook of medicine for medicine faculty students / Smirnova A. Yu., V. V. Gnoevykh; Ulyanovsk State University, Institute of Medicine, Ecology and Physical culture. - Ulyanovsk : ULSU, 2018. - 163 p. : ill. - Текст на англ. яз. URL: <http://lib.ulsu.ru/MegaPro/Download/MObject/1237> . - Режим доступа: ЭБС УлГУ. - Текст : электронный.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

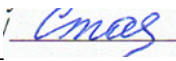
2 Рогова Л. Н. Diagnostic hemostasis and thrombosis tests / Л. Н. Рогова. - Волгоград : ВолГМУ, 2019. - 76 с. - Текст : электронный // ЭБС "Букап" : [сайт]. - URL : <https://www.books-up.ru/ru/book/diagnostic-hemostasis-and-thrombosis-tests-9756585/>

Educational- methodical:

Klochkov V. V.

Guidelines for the organization of independent work of students in the discipline "Urology and andrology" for the specialty 31.05.01 "General medicine" (with the development of the program in English) / V. V. Klochkov; Ulyanovsk State University. - 2022. - 32 p. - Неопубликованный ресурс; На англ. яз. - URL: <http://lib.ulsu.ru/MegaPro/Download/MObject/13616>. - Режим доступа: ЭБС УлГУ. - Текст : электронный.

AGREED:

Leading specialist Стадольникова/  / 2024\_

The position of the worker scientific library Full name signature date

## b) Professed data base, directory and search systems:

### 1. Electronic library systems:

1.1. Цифровой образовательный ресурс IPRsmart : электронно-библиотечная система : сайт / ООО Компания «Ай Пи Ар Медиа». - Саратов, [2024]. – URL: <http://www.iprbookshop.ru>. – Режим доступа: для зарегистрир. пользователей. - Текст : электронный.

1.2. Образовательная платформа ЮРАЙТ : образовательный ресурс, электронная библиотека : сайт / ООО Электронное издательство «ЮРАЙТ». – Москва, [2024]. - URL: <https://urait.ru> . – Режим доступа: для зарегистрир. пользователей. - Текст : электронный.


1.3. База данных «Электронная библиотека технического ВУЗа (ЭБС «Консультант студента») : электронно-библиотечная система : сайт / ООО «Политехресурс». – Москва, [2024]. – URL: <https://www.studentlibrary.ru/cgi-bin/mb4x>. – Режим доступа: для зарегистрир. пользователей. – Текст : электронный.

1.4. Консультант врача. Электронная медицинская библиотека : база данных : сайт / ООО «Высшая школа организации и управления здравоохранением-Комплексный медицинский консалтинг». – Москва, [2024]. – URL: <https://www.rosmedlib.ru>. – Режим доступа: для зарегистрир. пользователей. – Текст : электронный.

1.5. Большая медицинская библиотека : электронно-библиотечная система : сайт / ООО «Букап». – Томск, [2024]. – URL: <https://www.books-up.ru/ru/library/> . – Режим доступа: для зарегистрир. пользователей. – Текст : электронный.

1.6. ЭБС Лань : электронно-библиотечная система : сайт / ООО ЭБС «Лань». – Санкт-Петербург, [2024]. – URL: <https://e.lanbook.com>. – Режим доступа: для зарегистрир. пользователей. – Текст : электронный.

1.7. ЭБС **Znanium.com** : электронно-библиотечная система : сайт / ООО «Знаниум». - Москва, [2024]. - URL: <http://znanium.com> . – Режим доступа : для зарегистрир. пользователей. - Текст : электронный.

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

**2. КонсультантПлюс** [Электронный ресурс]: справочная правовая система. / ООО «Консультант Плюс» - Электрон. дан. - Москва : КонсультантПлюс, [2024].

**3. eLIBRARY.RU**: научная электронная библиотека : сайт / ООО «Научная Электронная Библиотека». – Москва, [2024]. – URL: <http://elibrary.ru>. – Режим доступа : для авториз. пользователей. – Текст : электронный

**4. Федеральная государственная информационная система «Национальная электронная библиотека»** : электронная библиотека : сайт / ФГБУ РГБ. – Москва, [2024]. – URL: <https://нэб.рф>. – Режим доступа : для пользователей научной библиотеки. – Текст : электронный.

**5. Российское образование** : федеральный портал / учредитель ФГАУ «ФИЦТО». – URL: <http://www.edu.ru>. – Текст : электронный.

**6. Электронная библиотечная система УлГУ** : модуль «Электронная библиотека» АБИС Мега-ПРО / ООО «Дата Экспресс». – URL: <http://lib.ulsu.ru/MegaPro/Web>. – Режим доступа : для пользователей научной библиотеки. – Текст : электронный.

Инженер ведущий



Щуренко Ю.В. 2024


Auditoriums for lectures, a training room for seminars, for monitoring and intermediate certification, group and individual consultations.

The auditoriums are equipped with specialized furniture, a training board. Lecture rooms are equipped with multimedia equipment to provide information to a large audience. The premises for independent work are equipped with computers with the ability to connect to the Internet and provide access to the electronic information and educational environment, the electronic library system.

## 11. SPECIAL CONDITIONS FOR STUDENTS WITH DISABLED POSSIBILITIES

If necessary, students from among persons with disabilities (at the request of the student) can be offered one of the following options for the perception of information, taking into account their individual psychophysical characteristics:

(for persons with visual impairments: in printed form in an enlarged font; in the form of an electronic document; in the form of an audio file (translation of educational materials into audio format); in printed form in Braille; individual consultations with the assistance of a typographical language interpreter; individual tasks and consultations; (for persons with hearing impairments: in printed form; in the form of an electronic document; video materials with subtitles; individual consultations with the involvement of a sign language interpreter; individual tasks and consultations; (for persons with musculoskeletal disorders: in printed form; in the form of an electronic document; in the form of an audio file ; individual assignments and consultations. If it is necessary to use partly distance educational technologies in the educational process, the

Министерство науки и высшего образования РФ Ульяновский государственный университет	Форма	
Ф - Рабочая программа дисциплины		

organization of work with students with disabilities and disabled people is provided in the electronic information and educational environment, taking into account their individual psychophysical characteristics.

Creator



Klochkov V.V., professor, MD