

**MINISTRY OF HEALTH OF THE REPUBLIC OF BELARUS
EDUCATIONAL INSTITUTION
BELARUSIAN STATE MEDICAL UNIVERSITY**

**Контрольный
экземпляр**

APPROVED

by First Vice-Rector, Professor
S.V. Gubkin



Reg. # UD-

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PHYSICAL THERAPY AND MEDICAL REHABILITATION

**Curriculum of higher educational institution
in the educational discipline for the specialty:**

1-79 01 01 «General Medicine»

Minsk, BSMU 2018

Curriculum is based on the standard educational program «Physical therapy and medical rehabilitation», approved 05.02.2018, registration number TD-L621/type.

COMPLIERS:

T.I. Kalentchyts , PhD, Associate Professor of the Department of Medical Rehabilitation and Physiotherapy of the Educational Institution «Belarusian State Medical University», Associate Professor

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RECOMMENDED FOR APPROVAL:

by the Department of Medical Rehabilitation and Physiotherapy of the Educational Institution «Belarusian State Medical University» of 01.06.2018 (protocol № 13)

by the Methodological Commissioning Therapy of the Educational Institution «Belarusian State Medical University» of 04.06.2018(protocol №218/1)

EXPLANATORY NOTE

“Physical therapy and medical rehabilitation” is a study subject, containing systematized scientific knowledge on methods of rehabilitation and compensation by medications and medical techniques of consequences of acquired and inborn diseases and injuries.

The curriculum of the discipline “Physical therapy and medical rehabilitation” includes the latest scientific data on medical rehabilitation and physiotherapy. The peculiarity of the new standard syllabus is in formulating the objectives of teaching and learning the subject “Physical therapy and medical rehabilitation”, aimed at fostering in students academic, social, personality and professional competence.

The aim of teaching and learning the discipline “Physical therapy and medical rehabilitation” is to provide the students with the scientific knowledge about the fundamentals of rehabilitation of health, functional capabilities, vital activity of individuals with inborn deficiencies and with acquired diseases and injuries.

The skill of using methods and means of medical rehabilitation and physiotherapy in everyday medical practice facilitates a more effective functional rehabilitation of patients and invalids, prevents socially significant limitations of vital functions of people who have survived diseases or injuries. It reduces unjustified disability of patients of different profiles, improves their quality of life; they better integrate into society. A great number of people start working again.

The tasks of studying the discipline are to develop the students’ academic competences, based on the ability to self-search educational and information resources, as well as acquire and understand the knowledge of:

- the essence of medical rehabilitation and its distinction from the treatment of patients of different profiles;
- methods of evaluation of consequences of the pathology, which is the most important in the structure of morbidity and disability;
- modern means of medical rehabilitation and physiotherapy in most widely occurring diseases which lead to disability.

The tasks of teaching the subject are in fostering social, personality and professional competence of doctors to be, the essence of which is the knowledge and implementation of methods and means of medical rehabilitation and physiotherapy in the process of rendering medical aid to patients with various diseases, which stimulates the shaping of clinical thinking in accordance with the norms of medical ethics and deontology.

Teaching and successful learning of the discipline “Physical therapy and medical rehabilitation” is done on the basis of the knowledge and skills acquired by the students of the following subjects:

Internal diseases. Ischemic heart disease, arterial hypertension, chronic heart failure, bronchial asthma, chronic obstructive lung disease, pulmonary

insufficiency, rheumatoid arthritis. Classification, etiology and pathogenesis, methods of function studies, treatment.

Neurology. Acute cerebral circulation disorder, osteochondrosis of the spinal cord. Methods of function studies, treatment.

Traumatology and Orthopedics. Consequences of upper and lower limb injuries. Scoliosis. Methods of function studies, treatment.

Surgical diseases. Surgical interference in thoracic and abdominal cavities.

As a result of studying the discipline “Physical therapy and medical rehabilitation” the student should

know:

- the laws of the Republic of Belarus regulating the main provisions of rehabilitation and disability prevention;
- documents of the World Health Organization, related to rehabilitation;
- regulations of the Ministry of Health on rehabilitation and physiotherapy;
- general subjects of organizing the service of medical rehabilitation and physiotherapy in the Republic of Belarus;
- theoretical and methodological fundamentals of medical rehabilitation (concept of disease consequences – ICDH, ICF);
- the form of medical rehabilitation individual program;
- disability criteria;
- methods of assessment of the functional condition and vital activity of cardiologic patients (IHD, AH), pulmonary patients (bronchial asthma, COLD) and patients with motor defects (arthritis, upper and lower limb injuries, osteochondrosis of the spinal cord) and with cerebral circulation disorders;
- action mechanism of physical factors;
- means of medical rehabilitation and physiotherapy.

be able to:

- make a clinical and functional diagnosis on the basis of examination data and function studies;
- assess the functional condition and vital activity of patients with cardiovascular disorders (IHD, AH), pulmonary diseases (bronchial asthma, COLD, patients with motor defects (arthritis, upper and lower limb injuries, osteochondrosis of the spinal column) and with cerebral circulation disorders;
- choose means and methods of rehabilitation and physiotherapy for the patients of the above listed categories.

master

- methods for conducting and evaluating standard stress tests;
- basic methods of electrotherapy and phototherapy.

The structure of the curriculum for the academic discipline “Physical therapy and medical rehabilitation” includes 14 topics.

Total number of hours for the study of the discipline is 122 academic hours. Classroom hours according to the types of studies: lectures - 14 hours, practical classes - 60 hours, student independent work (self-study) - 48 hours.

Current assessment is carried out according to the syllabus of the specialty in the form of a credit (9, 11 semesters).

Form of higher education – full-time

**ALLOCATION OF ACADEMIC TIME
ACCORDING TO SEMESTERS OF STUDY**

Code, name of the specialty	semester	Number of academic hours					Form of current assessment
		total	in-class	including		out-of-class self-studies	
				lectures	laboratory studies (practical classes and seminars)		
1-79 01 01 General Medicine	9	48	31	6	25	17	credit
1-79 01 01 General Medicine	11	74	43	8	35	31	credit
Total		122	74	14	60	48	

THEMATIC PLAN

Section (topic) name	Number of class hours	
	lectures	Practical (laboratory) sessions
1.General fundamentals of physiotherapy.	2	5
2.Direct current and its usage in treatment and prevention.	-	
3.Pulse electrotherapy.	-	5
4.High-frequency, ultrahigh-frequency, and super high-frequency therapy. Aeroionotherapy. Mechanotherapy	-	5
5. Heliotherapy, magneto therapy	2	5
6.Mud therapy, heat therapy, hydrotherapy, and cryotherapy. Sanatorium-and-spa treatment.	2	5
7.General fundamentals of medical rehabilitation.	2	7
8.Methods and tools of medical rehabilitation	4	
9.Peculiarities of check up in rehabilitation. Functional load tests	2	
10.Fundamentals of physical rehabilitation of patients. Rehabilitation of patients with arthropathy	-	7
11.Medical rehabilitation in cardiology	-	7
12.Medical rehabilitation in pulmonology	-	7
13.Medical rehabilitation in surgery, traumatology and in orthopaedics,	-	3
14.Medical rehabilitation in neurology and neurosurgery. A final test.	-	4
Total number of hours	14	60

CONTENT OF THE EDUCATIONAL MATERIAL

1. General fundamentals of physiotherapy. The definition of the subject "Physiotherapy", its brief history. Contribution of domestic scientists to the development of physiotherapy, Belarusian school of physiotherapists. Major directions in the medical use of physical factors (treatment, rehabilitation, prevention, diagnostics). Peculiarities and advantages of therapeutic physical factors. Classification of tools and methods of physiotherapy. Safety rules in working with physiotherapeutic devices. Modern ideas of the mechanisms of physiological and therapeutic effects of natural and preformed physical factors. The physical, physico-chemical and biological stages of their effect on the human body. Local, segmental and general reactions of the human body to physiotherapeutic procedures, their interconnection. The role of the skin in implementing the effect of physical factors. Neurophysiologic and humoral aspects of the action mechanism of physiotherapeutic procedures. Principles of physiotherapy. Correlation and combination of physiotherapeutic factors.

2. Direct current and its usage in treatment and prevention.

Physico-chemical fundamentals and mechanisms of physiological and therapeutic effect of direct current on the human body. Dosage of direct current. Medicine electrophoresis, general fundamentals and major peculiarities of the method. New methods and techniques of electrophoresis.

3. Pulse electrotherapy. Electric sleep. Diadynamic therapy. Amplipuls therapy. Interferential current therapy. Fluctuarization. Transcutaneous electrical stimulation. Mechanism of physiological and therapeutic action. Indications and contraindications.

4. High-frequency, ultrahigh-frequency, and superhigh-frequency therapy. Aeroionotherapy. Mechanotherapy.

General description of high-frequency methods of electrotherapy. Heat and oscillation components of the action of high-frequency factors. Physical characteristic of the factors. Mechanism of the physiological and therapeutic action. Indications and contraindications. Mechanotherapy. The concept of ultrasound therapy. Physical and biophysical fundamentals of the method. Mechanism of physiological and therapeutic action of ultrasound. Low-frequency ultrasound, advantages of low-frequency ultrasound therapy. Indications for and contraindications against ultrasound therapy. Devices. Method of carrying out procedures. Safety rules. Phonophoresis of pharmaceutical substances. Mechanism of therapeutic action, method of carrying out procedures, indications and contraindications. Aeroionotherapy. The concept of air ions and hydroaeroions. Peculiarities of the action of positive and negative air ions and hydroaeroions.

5. Heliotherapy. Magneto therapy

Physical and biophysical characteristic of light, spectrum of light emission. Physiological and therapeutic action of infrared and visible rays. Bioptron-therapy. Physiological and therapeutic action of plane-polarized light. Ultraviolet rays. Physiological and therapeutic action of ultraviolet rays with different wave lengths (LUV, MUV, SUV). Ultraviolet erythema, its dynamics and biological role. Indications and contraindications. Lasertherapy. Physical and biophysical characteristic of laser radiation. Mechanism of physiological and therapeutic action. The concept of laser puncture and laser irradiation of the blood. Indications and contraindications.

Magneto therapy. Biophysical fundamentals of magneto therapy. Types of magnetic fields (constant, alternating, traveling, pulsed). Physiological and therapeutic action of magnetic fields. Indications and contraindications.

6. Mud therapy, heat therapy, hydrotherapy, and cryotherapy. Sanatorium-and-spa treatment.

Physiological and therapeutic action. Indications and contraindications.

7. General fundamentals of medical rehabilitation.

Concept of rehabilitation. Types of rehabilitation. Definition of medical rehabilitation.

Concept of disease aftereffects. Types of function disturbances according to the ICDH pattern. Vital activity categories, classification, definitions. Types of social deficiency. Pattern ICF.

Goals of medical rehabilitation. Concept of "Quality of life", definition, components. Distinction of rehabilitation from treatment. Principles of rehabilitation. Indications for and contraindications against assigning rehabilitation procedures. Selection for rehabilitation. Clinical rehabilitation groups.

Disability criteria

Organization of rehabilitation service, recommended by the WHO. Concept of rehabilitation program and rehabilitation service. Staff of a medical rehabilitation team. Concept of ergo therapy.

The RB Laws on rehabilitation. The WHO documents on rehabilitation. The RB Ministry of Health regulations on rehabilitation. Stages of medical rehabilitation. The form of the individual program of a patient's medical rehabilitation.

Peculiarities of taking a medical history in rehabilitation. Study of motor functions. Methods of study of physical development. Methods of assessment of physical development. Assessment of physical development according to the index method. Psychological examination in rehabilitation. Methods of psychological examination. The concept of "inward picture of the disease", its definition, significance in rehabilitation. Types of "inward picture of the disease", methods of assessment.

Examination and assessment of everyday activity. The scale of functional independence, The scales of Bartel, Katz. Charts of functional condition assessment. The concept of a functional class

8. Methods and Tools of Medical Rehabilitation

Characteristic of medical rehabilitation means from the position of demonstrative medicine.

Kinesitherapy. Classification of kinesitherapy means, their brief characteristic. Contraindications against prescribing therapeutic physical training, massage, mechanotherapy, manual therapy.

Dietary treatment. General characteristic of the method. The WHO recommendations on a balanced healthy diet for developing countries.

Psychotherapy. Methods of psychotherapy, used in treatment of somatic patients. Training for hypoxia. Types of training for hypoxia, indications and contraindications.

Medical technical means

9. Peculiarities of check up in rehabilitation. Functional loading tests

Classification of loading tests. Indications for load testing. Contraindications against physical load tests. Evaluation of loading tests. Degrees of physical working capacity according to the results of physical loading tests. Muscular load tests. Methods of conducting and evaluating a standard test (20 squats, a two-minute run), PWC170 test, max., MPK test; types of response of the cardiovascular system to a standard physical load. The Robinson index, the index of the response quality. Breath-holding tests, methods of conducting them and evaluation. Vegetative tests. Tests with changing the body position, methods of conducting them and evaluation. Psycho-emotional loading tests.

10. Fundamentals of physical rehabilitation of patients. Rehabilitation of patients with arthropathy

The main laws of the body self-improvement. Dominant of the motor system. Classification of physical exercises. Mechanisms of physical exercises effect on the vegetative and regulating links of the body functional systems.

The main contingents of patients liable to rehabilitation in arthropathy (rheumatoid arthritis, primary osteoarthritis).

Assessment of the functional condition of vital activity in patients of this category. Means and methods of medical rehabilitation applied to patients of this category.

11. Medical rehabilitation in cardiology

The main contingents of patients liable to rehabilitation (IHD, arterial hypertension).

Assessment of the functional condition and vital activity in patients of this category. Loading tests used in cardiology.

Means and methods of medical rehabilitation, applied to patients with cardiovascular diseases. Development of an individual rehabilitation program for patients with IHD and arterial hypertension.

12. Medical rehabilitation in pulmonology

The main contingents of patients liable to rehabilitation (COLD, bronchial asthma).

Assessment of the functional condition and vital activity in patients of this category. Loading tests used in pulmonology. Means and methods of medical

rehabilitation, applied in pulmonology. Development of an individual rehabilitation program for patients with COLD, bronchial asthma.

13. Medical rehabilitation in surgery, traumatology and orthopaedics.

The main contingents of patients liable to rehabilitation (patients after surgical interference in thoracic and abdominal cavities, patients with aftereffects of the upper and lower limb injuries, patients with scoliosis). Methods of assessment of functional possibilities and vital activity of patients of this category.

Means and methods of medical rehabilitation applied in surgery and in traumatology. Development of an individual rehabilitation program for patients, who have suffered upper or lower limb injuries.

14. Medical rehabilitation in neurology and neurosurgery. The main contingents of patients liable to rehabilitation in neurology (disturbed cerebral circulation, osteochondrosis of the spinal cord) in neurology. Methods of assessment of functional possibilities and vital activity of patients of this category. Means and methods of medical rehabilitation applied in neurology.

EDUCATIONAL DISCIPLINE CURRICULAR

CHART

TOPIC#	TOPIC NAME	NUMBER OF HOURS		SELF-STUDIES	EQUIPMENT	FORM OF CONTROL
		LECTURES	PRACTICAL			
	9-th semester	6	25	17		
1	General fundamentals of physiotherapy	2		3	Apparatus for physical therapy	1(1.1.-1.4), 2(2.1.-2.5)
2	Direct current and its usage in treatment and prevention	-			Apparatus for physical therapy	1(1.1.-1.4), 2(2.1.-2.5)
3.	Pulse electrotherapy	-	5	3		
4.	High-frequency, ultrahigh-frequency, and superhigh-frequency therapy. aeroionotherapy. Mechanotherapy.	-	5	3	Apparatus for physical therapy	1(1.1.-1.4), 2(2.1.-2.5)
5.	Heliotherapy, magnetotherapy	2	5	4	Apparatus for physical therapy	1(1.1.-1.4), 2(2.1.-2.5)
6.	Hydrotherapy, mud therapy, heat therapy. Sanatorium-and-spa treatment.	2	5	4	Apparatus for physical therapy	1(1.1.-1.4), 2(2.1.-2.5) 3(3.1.-3.), (4.1)

11-th semester		8	35	31	
7	General fundamentals of medical rehabilitation.	2			Apparatus for load tests; Phonendoscopes; Tonometers
8	Methods and tools of medical rehabilitation	4	7	5	Apparatus for load tests; Phonendoscopes; Tonometers
9	Regularities of check up in rehabilitation. Functional load tests	2			Apparatus for load tests; Phonendoscopes; Tonometers
10	Fundamentals of physical rehabilitation of patients. Rehabilitation of patients with arthropathy.	-	7	5	Phonendoscopes; Tonometers; Goniometers; Dynamometers; Simulators; Mechanotherapy machines
11.	Medical rehabilitation in cardiology	-	7	5	Phonendoscopes; Tonometers; Simulators
12.	Medical rehabilitation in pulmonology	-	7	5	Phonendoscopes; Tonometers; Simulators; Peakflowmeter; Simulator of respiratory muscles,
13.	Medical rehabilitation in surgery, traumatology and in orthopaedics,	-	7	11	Phonendoscopes; Tonometers; Goniometers; Simulators; Mechanotherapy machines
14.	Medical rehabilitation in neurology and neurosurgery. A final test.	-	7		1(1.1.-1.4), 2(2.1.-2.5), 3(3.1.-3.3.), 4(4.1)
Total hours 122		14	60	48	

INFORMATION AND INSTRUCTIONAL UNIT

LITERATURE

Basic

1. DeLiza, Joel A. Rehabilitation Medicine. Principles and Practice/Joel A. DeLiza. - J.B. Lippincott, 1988. - p. 3-10, 25-44, 66-71, 95-104, 140-144, 257-271, 296-304, 276-292, 307-314, 320-329, 372-378, 346-367, 537-556, 571-582, 726-730, 671-782, 688-705, 765-790
2. International Classification of Functioning, Disability and Health. - World Health Organization: Geneva, 2001. - P. 3-30, 34, 113, 123, 128, 215.

Normative regulatory acts:

1. Protocols of early medical rehabilitation: Instructions for use. Approved by the Ministry of Health of the Republic of Belarus on April 12, 2005, reg. No. 520405.
2. Protocols of medical rehabilitation of patients and invalids in inpatient and outpatient departments of medical rehabilitation: Instructions for use. Approved by the Ministry of Health of the Republic of Belarus 12.04.2005, reg. 530405.
3. Order of the Ministry of Health of the Republic of Belarus "On the procedure for providing medical rehabilitation in outpatient, inpatient settings, in day care, and outside health care organizations" of 10.12.2014.

LIST OF AVAILABLE DIAGNOSTIC TOOLS

The following forms are used for competences assessment:

1. Oral form:
 - 1.1. conference reports;
 - 1.2. oral credits;
 - 1.3. assessment based on role-playing;
 - 1.4. situational tasks and tests;
2. Written form:
 - 2.1. tests;
 - 2.2. control questioning;
 - 2.3. essays;
 - 2.4. article/report publications;
 - 2.5. evaluation based on modular rating system;
3. Oral-written form:
 - 3.1. count of classroom practical exercises with oral defense;
 - 3.2. credits;
 - 3.3. evaluation based on modular rating system

4. Technical form:
 - 4.1. electronic tests;

LIST OF PRACTICAL SKILLS

1. Evaluation of the functional state of the cardiovascular system
2. Assessment of the functional state of the respiratory system.
3. Evaluation of the functional state of the musculoskeletal system.
4. Assessment of the psycho emotional state (determination of the type of internal picture of the disease) of patients of different profiles.
5. Selection of the basic means of rehabilitation for patients with diseases occupying leading positions in the structure of nosology and disability.

LIST OF LECTURES

9th semester

1. Fundamentals of physiotherapy.
2. Light therapy. Magneto therapy.
3. Water, mud, heat treatment. Spa treatment.

11th semester

4. Fundamentals of medical rehabilitation.
5. Methods and tools of medical rehabilitation.
6. Peculiarities of check up in rehabilitation. Functional loading tests.

LIST OF LABORATORY (*PRACTICAL*) STUDIES

9th semester

1. Fundamentals of physiotherapy. Constant current and its therapeutic and prophylactic use.
2. Impulse electrotherapy
3. High-frequency, ultra-high-frequency and ultra-high-frequency therapy. Mechanotherapy, aeroionotherapy
4. Light therapy. Magneto therapy.
5. Water, mud, heat treatment. Spa treatment

11th semester

6. Fundamentals of medical rehabilitation. Methods and tools of medical rehabilitation. Peculiarities of check up in rehabilitation. Functional loading tests.
7. Fundamentals of physical rehabilitation of patients. Rehabilitation of patients with joint diseases.
8. Medical rehabilitation in cardiology.
9. Medical rehabilitation in pulmonology.
10. Medical rehabilitation in surgery, traumatology and orthopedics. Medical rehabilitation in neurology and neurosurgery.

**PROTOCOL OF THE CURRICULUM APPROVAL BY OTHER
DEPARTMENTS**

Title of the discipline requiring approval	Department	Amendments to the curriculum of the academic discipline	Decision of the department, which designed the curriculum (date, protocol #)
1. Internal Diseases	1st and 2nd internal diseases, Cardiology and internal diseases	Pay attention to the assessment of functional disorders in diseases of internal organs	The program was approved at the meeting of the Department of Medical Rehabilitation and Physiotherapy (protocol No. 13 of 06.06.18).
2.Surgical Diseases	1st and 2 nd Surgical Diseases	Pay attention to the evaluation of functional disorders after surgery on the organs of the thoracic and abdominal cavities.	The program was approved at the meeting of the Department of Medical Rehabilitation and Physiotherapy (protocol No. 13 of 06.06.18).
3.Traumatology and orthopedics	Traumatology and orthopedics	Pay attention to the evaluation of functional disorders in trauma and orthopedic diseases to be studied	The program was approved at the meeting of the Department of Medical Rehabilitation and Physiotherapy (protocol No. 13 of 06.06.18).

COMPILERS/AUTHORS:

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A.B.Rysevets

Head of the department of Medical
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L.A.Malkevich

Curriculum content, composition and accompanying documents comply with established requirements.

Dean of the Medical Faculty of
International Students



A.V.Haiduk

11.07.2018

Methodologist of Educational Institution

“Belarusian State medical University”



S.V.Zaturanova

11.07.2018

Head of the Foreign Languages
Department



M.N.Petrova

11.07.2018

Information about the authors (compilers) of the curriculum

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