

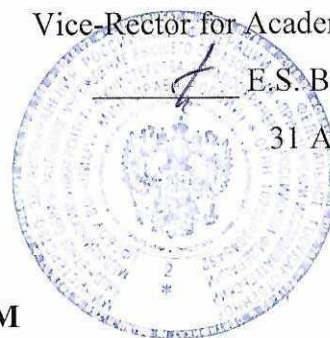
Federal State Budgetary Educational Institution of Higher Education  
"Privolzhsky Research Medical University"  
Ministry of Health of the Russian Federation

APPROVED

Vice-Rector for Academic Affairs

E.S. Bogomolova

31 August 2021



**WORKING PROGRAM**

Name of the academic discipline: **PHYSICAL CULTURE AND SPORT**

Specialty: **31.05.01 GENERAL MEDICINE**

Qualification: GENERAL PRACTITIONER

Department: **PHYSICAL CULTURE AND SPORT**

Mode of study: FULL-TIME

Labor intensity of the academic discipline: **72 academic hours**

Nizhny Novgorod  
2021

The working program has been developed in accordance with the Federal State Educational Standard for the specialty 31.05.01 General medicine, approved by Ministry of Science and Higher Education of the Russian Federation No. 988 of August, 12, 2020 .

**Developers of the working program:**

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The program was reviewed and approved at the department meeting (protocol No. 8, March, 5, 2021)

Head of the Department, Doctor of medical science, Associate professor, Guryanov M.S.

March, 5, 2021



AGREED

Deputy Head of EMA ph.d. of biology \_\_\_\_\_ Lovtsova L.V.

(signature)

March, 5, 2021

**1. The purpose and objectives of mastering the academic discipline** is formation of the ability of students of the medical faculty to use methods and means of physical culture to ensure full-fledged social and professional activities (UC-7) (hereinafter – the discipline):

1.1. The purpose of mastering the discipline: (*participation in forming the relevant competencies*).

1.2. Tasks of the discipline:

1. Knowledge of the role of physical culture in personal development, preservation, health promotion and preparation for professional activity

2. The ability to creatively and methodically justify the use of physical culture and wellness activities to achieve life and professional goals

3. Possession of a system of knowledge that ensures the preservation and strengthening of health, mental well-being, development and improvement of psychophysical abilities, personality qualities and properties, self-determination in physical culture and sports

1.3. Requirements to the deliverables of mastering the discipline

As a result of completing the discipline, the student should

**Know:** the role of physical culture in personal development, preservation, health promotion and preparation for professional activity;

**Be able to:** it is creatively and methodically justified to use physical culture and wellness activities to achieve life and professional goals;

**Possess:** a system of knowledge that ensures the preservation and strengthening of health, mental well-being, the development and improvement of psychophysical abilities, personality qualities and properties, self-determination in physical culture and sports.

**2. Position of the academic discipline in the structure of the General Educational Program of Higher Education (GEP HE) of the organization.**

**2.1.** The discipline physical culture and sport refers to the core part (*or the part formed by the participants of educational relations*) of Block 1 of GEP HE (Academic discipline index).

The discipline is taught in 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup> semesters/1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> years of study.

**2.2. The following knowledge, skills and abilities formed by previous academic disciplines are required for mastering the discipline:** philosophy, pedagogy, psychology, law, normal anatomy, normal physiology, pathological physiology, pharmacology, therapeutic physical culture and sports medicine, hygiene, propaedeutics of internal diseases, general surgery, neurology, traumatology

**2.3. Mastering the discipline is required for forming the following knowledge, skills and abilities for subsequent academic disciplines:**

1. knowledge of the history of the development of physical culture and sports in Russia; the social significance of physical culture and sports; age-sex characteristics of the development of basic physical qualities and motor skills involved; the influence of health-improving systems of physical education on health promotion, prevention of occupational diseases and bad habits; methods of monitoring and evaluation of physical development and physical fitness; rules and methods planning of individual classes for various groups of the population; fundamentals of physical education of various groups of the population

2. the ability to effectively use the types and forms of rational motor activity; to use the acquired knowledge, motor skills and skills to improve performance, preserve and strengthen

health; to prepare for professional activity; to organize activities for the formation of a healthy lifestyle; organization and conduct of individual, collective, family recreation; participation in mass recreational activities and sports competitions

3. skills of performing individually selected complexes of health-improving and adaptive (therapeutic) physical culture, complexes of morning hygienic gymnastics; performing the simplest techniques of self-massage and relaxation.

### 3. Deliverables of mastering the academic discipline and metrics of competence acquisition

Mastering the discipline aims at acquiring the following universal competencies

№	Competence code	The content of the competence (or its part)	Code and name of the competence acquisition metric	As a result of mastering the discipline, the students should:		
				know	be able to	possess
1.	UC-7	Selects health-saving technologies to support a healthy lifestyle, taking into account the physiological characteristics of the body	UC-7.1	Values, functions of physical culture and sports, the role of physical culture and sports in the development of society	Plan and organize training sessions, apply various exercise systems in order to improve physical fitness to preserve and strengthen health	Principles, methods and means of organizing physical culture and sports, including recreational physical culture
		Plans his working and free time for an optimal combination of physical and mental load and ensuring working capacity	UC 7.2	Methods and means of physical culture and sports, the basics of the formation and improvement of physical qualities, as well as the level of physical fitness	Exercise self-control of the state of your body in the process of physical education and sports	Ways and means of organizing a healthy lifestyle
		Observes and promotes the norms of a healthy lifestyle in various life situations and in professional activities	UC 7.3	Principles and fundamentals of the methodology of conducting training sessions in order to increase the adaptive reserves of the body and strengthen health	To use the means and methods of physical culture for the formation of physical and mental qualities of a person and the organization of a healthy lifestyle	The skills of organizing independent physical education and sports, including recreational physical education

**4. Sections of the academic discipline and competencies that are formed when mastering them**

№	Competence code	Section name of the discipline	The content of the section in teaching units
1	UC-7	Core part	72 hours (2 credits)

**5. Volume of the academic discipline and types of academic work**

The total labor intensity of the discipline is 2 credits (72 hours).

Type of educational work	Labor intensity		Labor intensity (AH) in semesters					
	volume in credit units (CU)	volume in academic hours (AH)	I	II	III	IV	V	VI
Classroom work, including	-	72	36	36	-	-	-	-
Practicals (P)	-	72	36	36	-	-	-	-
Student's individual work (SIW)	-	-	-	-	-	-	-	-
Mid-term assessment	-	-						
credit/exam ( <i>specify the type</i> )	2	-	1	1	-	-	-	-
<b>TOTAL LABOR INTENSITY</b>	-	72	36	36	-	-	-	-

**6. Content of the academic discipline**

6.1. Sections of the discipline and types of academic work

№	Name of the section of the academic discipline	Types of academic work* (in AH)					
		L	LP	P	S	SIW	total
1	Practical	-	-	72	-	-	72
	<b>TOTAL</b>	-	-	72	-	-	72

\* - L – lectures; LP – laboratory practicum; P – practicals; S – seminars; SIW – student's individual work.

6.2. Thematic schedule of educational work types:

6.2.3. Thematic plan of practicals

№	Name of the topics of practicals	Volume in AH	
		1 semester	2 semester
1	Gymnastic	10	4
2	Athletics	10	6
3	Skiing	-	14
4	Basketball	6	4
5	Volleyball	6	4
6	Badminton	4	-
7	Table tennis	-	4
	<b>TOTAL (total - AH)</b>	36	36

**7. Types of assessment formats for ongoing monitoring and mid-term assessment**

**7.1. Scientific research student's work:**

The research work of students is an integral part of the educational process of the Department of Physical Culture, contributes to attracting students to research work and instilling practical skills of

independent work. Its planning is carried out taking into account the main scientific problem being developed at the department.

Approximate directions:

7.1.1. Independent work to determine the tolerance of physical activity during physical education classes in various departments (main, special, sports improvement).

7.1.2. Participation as a co-executor of interdepartmental and interuniversity research topics.

7.1.3. Performing abstract work on sections:

- Sociological and general theoretical problems of physical culture and sports;
- Physical culture and sports in the health service;
- Physical education of children and adolescents;
- Medical aspects of sports activities;
- Professional and applied orientation of physical culture and sports;
- Medical and biological foundations of mass physical culture and sports;
- Motor and wellness systems;
- Correction of the psychophysical state of a person;
- Modern and non-traditional methods of maintaining working capacity;
- Adaptive physical education.

7.1.4. Presentation of reports at the final scientific student conferences of the SSS of the department, interuniversity, Russian and international student conferences.

7.1.5. Publication of the results of scientific research in the collections of scientific and practical conferences of various scales.

7.1.6. Participation in intra-university competitions.

## **7.2. Approximate topics of abstract works:**

7.1. The current state and prospects for the development of physical culture and sports in Russia.

7.2. The history of the development of physical culture in Russia.

7.3. Socio-political functions of physical culture and sports.

7.4. Prevention of nervous-emotional and psychophysical fatigue of students by means of physical culture and sports.

7.5. The main reasons for the change in the state of students during the examination session.

7.6. Psychophysiological characteristics of intellectual activity and educational work of medical students.

7.7. The main directions of the impact of physical exercises of the training regime on the human body.

7.8. Biochemical changes in the body during muscular activity of various kinds.

7.9. Structural and functional changes of the cardiovascular system under the influence of sports, the main methods of diagnosis of the "physiological" sports heart.

7.10. Medical problems of sports training (medical control, pedagogical, self-control; the relationship of motor activity and life expectancy).

7.11. Physiological foundations of sports and wellness training (type, magnitude, intensity of the load; frequency of classes; rest intervals; training methods).

7.12. Physiological assessment of the training process of various directions (general or special physical training). Doping: biological, pharmacological, narcotic, psychological; social aspects.

7.13. Doping, stimulants and their impact on the health of an athlete and improving athletic performance.

7.14. Pathological effect of prolonged use of doping and stimulants on the athlete's body (female, children's organisms).

7.15. Features of professionally applied physical training of students in their chosen field of training or specialty.

7.16. Motor mode in the doctor's wellness program.

7.17. Characteristics of working conditions and the nature of the psychophysical load of the doctor's professional activity.

7.18. Improvement of physical qualities using various simulators.

7.19. Exercise equipment for general physical training of athletes, persons with impaired health and the disabled.

7.20. Absolute and relative contraindications to training on simulators.

7.21. Non-traditional and "folk" means of maintaining and restoring athletic performance.

7.22. "Auto-training + physical education" as a means of improving performance.

- 7.23. The basics of restoring the functions and fitness of the human body.
- 7.24. The history of the Paralympic movement (summer, winter Games, "silent games", etc.).
- 7.25. Organization and forms of medical control in the process of physical culture and sports.
- 7.26. Types and methods of self-control in physical education and sports.
- 7.27. Modern original methods of assessing a person's physical condition (determination of biological age; assessment of functional state).
- 28. Endogenous and exogenous factors of injury occurrence and their prevention.

### **7.3. Evaluation tools for monitoring academic performance and results of discipline development**

The criteria for the effectiveness of training sessions are requirements and indicators based on the use of motor activity at least a certain minimum, mandatory and additional tests developed by the Department of Physical Culture for students of different study groups in sports (elective courses), professional and applied physical training, taking into account the specifics of training specialists at the university.

Control classes provide operational, current and final differentiated information about the degree of mastering theoretical and methodological knowledge and skills, about the state and dynamics of physical development, physical and professional – applied readiness of each student. Operational control provides information about the progress of students in a particular department, type of academic work. Current – allows you to assess the degree of mastering a section, topic, type of academic work. The final control makes it possible to identify the level of formation of the student's physical culture and self-determination in it through a comprehensive examination of knowledge, methodological and practical skills, characteristics of the student's general physical, sports and technical readiness, his psychophysical readiness for professional activity.

Evaluation of the development of the educational material of the program

Students of all academic departments who have completed the curriculum take a physical education test, which is conducted in three sections of educational activities. The criterion for assessing the success of mastering the educational material is the expert assessment of the teacher and the evaluation of the results of the relevant tests according to the developed tables. A separate assessment is given for each of the three sections. The overall grade is determined by the arithmetic mean of positive grades in all three sections of educational activity.

Section I. Theoretical and methodological knowledge, mastery of methodological skills and abilities.

The assimilation of the material of the section is determined by the level of mastery of theoretical and methodological knowledge, corresponding practical skills and skills of their use for an assessment not lower than "satisfactory".

Section II. General physical and sports – technical training.

In each semester, it is recommended that students plan to complete no more than 5 tests, including three mandatory physical fitness control tests in every second half of the year. Sample tests on general physical fitness for students of educational departments are presented in Tables No. 1, 3. The assessment of the performance of tests of general physical and sports and technical fitness is determined by the average number of points scored in all tests, provided that each of them is not lower than one point (Table 1,3).

The score for the section is determined according to Table 4, provided that each of the planned tests is completed by at least one point.

The physical and functional condition is also assessed in a special educational department. The assessment is made on a five-point scale (Table 2).

Professionally applied physical training. PFP is implemented in practical classes and is aimed at the development of:

- general endurance using walking, jogging, ski training, wellness aerobics, swimming;
- static endurance with repeated performance of dynamic exercises with muscle tension (dumbbell gymnastics, tennis ball hand press, flexion and extension of the arms at rest, work with an expander and on simulators, etc.) and static strength exercises;
  - for strength and static endurance, use exercises with dumbbells, athletic gymnastics, power aerobics, exercises on simulators;
  - accuracy of the motor and visual analyzers (throwing the ball for hit accuracy, juggling tennis balls, etc.).

- coordination of motor actions of the hands and fingers using exercises for fine motor skills of the hands, exercises with balls (other objects) of different diameters. Coordination exercises on the spot and in motion, driving a basketball, passing the ball in motion. Two-way games of volleyball, basketball, badminton, table tennis, basketball, darts.

In the training sessions with students of the special educational department of the PFP, the following are used:

- relaxation exercises to relieve nervous and emotional overstrain and short-term rest;
- autogenic training aimed at relieving tension or fostering moral and volitional qualities (concentration of attention, emotional stability, operational thinking and memory, self-control and determination).
- tempering exercises that increase the body's defenses (walking outdoors in cool weather, water procedures in the pool, etc.).



MANDATORY TESTS TO DETERMINE THE PHYSICAL FITNESS OF STUDENTS OF THE  
MAIN EDUCATIONAL DEPARTMENT

Characteristics of the orientation of the tests	Women					Men				
	Score in points									
	5	4	3	2	1	5	4	3	2	1
1. Speed and strength fitness test: Running – 100 m (sec.)	15,7	16,0	17,0	17,9	18,7	13,2	13,8	14,0	14,3	14,6
2. Strength fitness test: Lifting (sitting) and lowering the trunk from the prone position, legs secured, hands behind the head (number of times):	60	50	40	30	20					
Pull-up on the crossbar (number of times):										
вес до 85 кг						15	12	9	7	5
вес более 85 кг						12	10	7	4	2
3. General endurance test: Running 2000 м (min.,sec.)										
weight up to 70 kg	10.15	10.50	11.20	11.50	12.15					
weight more than 70 kg	10.35	11.20	11.55	12.40	13.15					
Running 3000 м (min.,sec.)										
weight up to 85 kg						12.00	12.35	13.10	13.50	14.30
weight more than 85 kg						12.30	13.10	13.50	14.40	15.30

Note: Mandatory tests are conducted at the beginning of the academic year as control tests that characterize the level of physical fitness of a first-year student upon admission to university and physical activity of a student during the holidays, and at the end of the academic year - as determining the shift in the level of physical fitness over the past academic year.

**CONTROL TESTS TO ASSESS THE LEVEL OF  
PHYSICAL AND FUNCTIONAL STATE OF THE ORGANISM OF STUDENTS OF THE SPECIAL  
EDUCATIONAL DEPARTMENT**

Chart 2

Chart of assessments of indicators of the functional state and physical development of students of the  
special educational department

Indicators		Score in points				
		1	2	3	4	5
Orthostatic test, beats/min		23-20	19-16	15-12	11-8	7-0
Vital index, ml/kg	M	<50	51-55	56-60	64-65	>66
	Ж	<40	41-45	46-50	51-56	>56
Gencha sample, sec	M	<26	27-34	35-49	50-57	>58
	Ж	<14	15-20	21-31	32-36	>37
PWC <sub>170</sub> kgm/min/kg	M	<13,5	13,6- 14,6	14,7- 15,7	15,8- 16,8	>16,8
	Ж	<9,5	9,6-10,5	10,6- 11,5	11,6- 12,5	>12,5
Biological age, conl.years (methodology of the Kiev Research Institute of Gerontology)		от +9,0 до +15	от +8,9 до +3,0	от +2,9 до -2,9	от -3,0 до -8,9	от -9,0 до -15,0
UFSF by E.A. Pirogova, conl.ed		<0,375	0,376- 0,525	0,526- 0,675	0,679- 0,825	>0,825
The Romberg test, sec		<9	10-15	16-29	30-40	>41
Tapping test, number of strokes/sec	M	<5,2	5,3-5,8	5,9-6,9	7,0-7,5	>7,5
	Ж	<4,8	4,9-5,2	5,3-5,9	6,0-6,4	>6,4
Martinet 's Trial, %		>100	99,9- 74,9	74,8- 49,9	49,8- 25,0	<25
Accuracy of muscle effort, %	M	>41,8	41,8- 33,1	33,0- 15,4	15,3- 6,7	6,6-0
	Ж	>50,6	50,6- 39,1	39,0- 16,0	15,9- 4,4	4,3-0
The level of depression, points (according to the method of E.R. Akhmedzhanov)		80-71	70-60	59-42	41-31	30-20

Chart 3

Chart of assessment of physical fitness of students of the special educational department

Characteristics of the test orientation / gender	Score in points					
	5	4	3	2	1	
<i>Strength abilities of abdominal muscles</i>						
lifting the shoulder girdle from the supine position, hands behind the head, legs bent at the knees, number of times	Ж	57 и выше	50 - 56	44 - 49	37 - 43	36 и ниже
	М	61 и выше	51 - 60	43 - 50	36 - 42	35 и ниже
lifting the legs up and down from the supine position, arms to the sides, number of times	Ж	36 и выше	31 - 35	28 - 30	24 - 27	23 и ниже
	М	37 и выше	33 - 36	29 - 32	25 - 28	24 и ниже
<i>or</i>						
flexion and extension of the legs at the knees, pulling the heels to the buttocks from the supine position, arms to the sides, number of times	Ж	43 и выше	38 - 42	33 - 37	28 - 32	27 и ниже
	М	45 и выше	41 - 44	36 - 40	30 - 35	29 и ниже
<i>Strength abilities of the back muscles</i>						
lifting the upper part of the trunk from the lying position on the stomach, hands forward, number of times	Ж	52 и выше	45 - 51	39 - 44	32 - 38	31 и ниже
	М	50 и выше	45 - 49	38 - 44	31 - 37	30 и ниже
<i>Strength abilities of the shoulder girdle muscles</i>						
flexion and extension of the arms from the stop while kneeling, number of times	Ж	36 и выше	28 - 35	23 - 27	19 - 22	18 и ниже
flexion and extension of the arms from the prone position, number of times	М	43 и выше	35 - 42	30 - 34	25 - 29	24 и ниже

Chart 4

Average test score in points

Assessment of tests of general physical, sports – technical and professional – applied readiness	Satisfactory	Well	Great
Average test score in points	2,0	3,0	3,5

### Section III. Vital skills and abilities. Professionally applied physical training.

The list of requirements and tests for each section, their assessment in glasses is carried out taking into account the profile of the graduates. Tests for mastering vital skills and abilities are mandatory, both in the main and in special educational departments (Table 5). In each semester, it is recommended to plan for students to complete no more than 2-3 credit tests in this section of preparation.

**CREDIT REQUIREMENTS FOR THE ASSESSMENT OF FORMATION  
PRACTICAL SKILLS OF STUDENTS OF THE SPECIAL EDUCATIONAL DEPARTMENT**

Semester	Credit requirements
1	To create and conduct a complex of hygienic gymnastics (physical training minutes, physical training breaks, etc.) with a group of students.
1	Submit a completed diary of self-control (health) with the dynamics of functional indicators and physical fitness for the first year.
1	Prepare a set of physical exercises taking into account individual deviations in the state of health.
1	Submit a completed diary of self-control (health) with the dynamics of functional indicators and physical fitness for the second year.
1	Make a set of exercises for the prevention of myopia.
2	Submit a completed diary of self-control (health) with the dynamics of functional indicators and physical fitness for the third year.
2	Make a set of physical exercises for the prevention of osteochondrosis (cervical, thoracic, lumbar spine).
2	Submit a completed diary of self-control (health) with the dynamics of functional indicators and physical fitness for four years of study.
2	Make a set of exercises for professionally applied physical training of a doctor (a medical doctor, a surgeon or a dentist, a hygienist).
2	Submit a completed diary of self-control (health) with the dynamics of functional indicators and physical fitness for five years of training.

Methodological recommendations for the organization of the study of the discipline in accordance with the order of the Ministry of Health and Social Development of the Russian Federation "On approval of the procedure for providing medical care during physical education and sports events" for the purpose of admission to physical education and participation in mass sports competitions, all students undergo a medical examination in certified medical institutions according to the established volume and types of medical research.

Based on the medical report, students are divided into 3 medical groups:

- basic – physical education classes without restrictions and participation in competitions are possible;
- preparatory - physical education classes with minor restrictions are possible without participation in competitions;
- special - physical education classes are possible according to a special program.

Students who are temporarily released from practical classes for health reasons, perform the discipline program in the amount equivalent to the number of academic hours in the form of: preparing abstracts, performing educational research, attending elective, participating in judging competitions, etc., in accordance with the collegial decision of the teachers of the profile department.

For training, health and control classes, students are assigned to the main, sports and special educational departments.

Students of the basic and preparatory medical groups are enrolled in the main educational department.

Students of a special medical group are enrolled in a special educational department.

The interrelation of various forms of educational and extracurricular activities creates conditions that ensure that students perform an optimal, scientifically-based amount of motor activity (6-8 hours per week) necessary to maintain good health.

Methodological recommendations on the organization of a practical module for students of a special

educational department.

#### RECRUITMENT OF SPECIAL MEDICAL GROUPS.

Students assigned to a special educational department according to medical examination data are enrolled in special medical groups. If there are conditions for classes, study groups are completed taking into account gender, diseases or the level of physical and functional (based on the indicators of the reaction of the cardiovascular system to the load) readiness of students.

The number of students of the special educational department should not exceed 8-12 people per teacher. Transfer from the groups of the special educational department to the groups of the preparatory and main departments is possible on the basis of a medical report at the beginning or end of the semester. Transfer of students from the main and preparatory departments to a special medical group is carried out at any time of the academic year according to the conclusion of a doctor. Students of special medical groups are required to undergo a medical examination at least twice a year and provide relevant health documents to the teacher.

The release of students from physical education classes may be temporary and only upon the conclusion of a doctor.

Students assigned to the physical therapy group according to the medical examination data can attend classes, but with mandatory systematic medical and pedagogical control.

*General contraindications to physical education are:*

- body temperature 37.1 C and above;
- exacerbation of a chronic disease;
- vascular crisis (hypertensive, hypotonic);
- cardiac arrhythmia: sinus tachycardia (110 beats/min and above),
- bradycardia (less than 50 beats /min), arrhythmia (extrasystoles with a frequency of more than 1 per minute).

Indications and contraindications to the use of physical exercises in special medical groups:

Diseases of the cardiovascular system and blood system.

*Physical exercises are shown.* Dynamic and static breathing exercises that increase the suction effect of the chest in relation to venous blood flow. A complex of restorative exercises performed in a sitting or lying position with a raised head. General developmental exercises. Active exercises for small and medium muscle groups; passive and active at a moderate pace for large muscles. Active on all muscles from lightweight starting positions (lying, reclining, sitting). Self-massage. Metered walking (medium and fast pace), terrencourt. Skiing, swimming. Hardening of the body. Games of low and medium intensity.

*Contraindications.* Careful running (depends on portability). Long-distance running. Physical overexertion (provokes an exacerbation of the disease). Exercises at an above-average pace. Depending on the condition and load tolerance, exercises with dumbbells, with breath retention may be excluded. In the postoperative period after surgical intervention for heart defects, use carefully: movements in trunk deflections, squats, low slopes and jumps.

Hypertension.

*Shown.* General developing "hypotensive exercises", which are characterized by springiness and softness of movements, a rhythm favorable for breathing. Exercises in balance, coordination, relaxation. Dynamic strength exercises with medium intensity dumbbells, strength exercises in isometric mode. Moderate cyclic exercises, walking at an average pace, exercises on a bicycle ergometer. Skiing. Swimming. Games of low and medium intensity.

*Contraindications.* Speed-strength exercises, sharp turns, head-down bends, straining, jumps and jumps, breath-holding exercises, exercises using the gravitational factor (standing on the shoulder blades, etc.) are excluded.

Syndrome of autonomic dysfunction.

*Shown.* Restorative exercises alternating with breathing exercises. Exercises to increase the mobility of the diaphragm, increase the strength of the respiratory muscles, etc. in the initial position of lying, sitting and standing. Alternating exercises for the muscles of the trunk, abdominal press, upper and lower extremities. Walking, exercise on a bicycle ergometer. Self-massage. Autogenic training and relaxation.

- In the hypotensive form of autonomic dysfunction syndrome (SVD), include strength and speed-strength exercises, static tension, coordination and balance.
- In the hypertensive form of SVD, include walking and other cyclic loads.
- For cardialgic, respiratory, gastrointestinal and other SVD syndromes, exercises should be selected depending on the existing complaints. Strictly differentiate the load depending on the state of health and

the shape of the SVD.

*Contraindications.* Sudden movements. Fast pace. Emotional stress. The selection of exercises is carried out strictly depending on the form of the SVD. Diseases of the respiratory system.

*Shown.* General developmental exercises from all starting positions in combination with breathing exercises (mainly for the muscles of the upper extremities and chest). Static breathing exercises with pronunciation of consonant sounds. Dynamic breathing exercises from various starting positions: lying, sitting, standing. Breathing exercises with an elongated and stepwise-elongated exhalation; with the utterance of a number of trembling, hissing and whistling sounds on exhalation, causing trembling of the glottis and bronchial tree (to reduce the tone of smooth muscles); with a reduction and delay of breathing on exhalation. Breathing exercises with an emphasis on diaphragmatic breathing and with resistance. Drainage exercises. Breathing exercises according to the method of Buteyko, Strelnikova, etc. Elements of vibration, shaking. Relaxation exercises. Terrencourt and other cyclic loads. Walking with acceleration, with the trunk tilted forward, while relaxing the trunk, upper shoulder girdle and upper limbs. Swimming.

*Contraindications.* Exercises with complex coordination of movements at a fast pace, straining. Carefully forced breathing. Sometimes exercises with hyperventilation of the lungs are inappropriate.

Diseases of the endocrine system.

*Shown.* General developmental exercises. Auto-training and relaxation exercises. Flexibility exercises. Breathing exercises. Cyclic exercises at a moderate pace outdoors.

*Contraindications.* Emotional overstrain. Exercises at a fast pace.

Diseases of the nervous system.

*Shown.* With neuroses, general developmental exercises, dumbbell gymnastics, exercises on simulators. Auto-training and relaxation exercises. Flexibility exercises. Breathing exercises. Gymnastics of cerebral vessels. Cyclic loads of low and medium intensity, prolonged walking at a slow and medium pace outdoors. Cycling, skiing. Swimming. Checkers and chess games. Hardening of the body. Self-massage. Recommend a rational mode of the day (adequate sleep, rest) and a rational motor mode.

*Contraindications.* Emotional overstrain. Exercises at a fast pace.

Diseases of the visual organs (myopia).

*Shown.* Exercises for small eye muscles and for accommodation (ciliary muscle). Palming. Gymnastics for the eyes by the method of: Avetisov, Bates, etc. Restorative exercises. Breathing exercises. Relaxation. Cyclic exercises: walking, light running, swimming, skating, skiing. Walking in the fresh air. Exercises for hardening the body.

*Contraindications.* Jumping. Exercises with weights (dumbbells, barbell), sharp movements, exercises using the gravitational factor. Running, with a high degree of myopia.

Diseases of the digestive system.

*Shown.* In chronic gastritis and gastroduodenitis, a rational diet is recommended. Breathing exercises. General strengthening and isometric exercises. Exercises for abdominal muscles that increase blood supply to internal organs. Special exercises for the muscles of the lumbar region, back, pelvis. Special physical exercises for muscle groups that are innervated by the same segments of the spinal cord as the organ. Auto-training. Relaxation.

- With reduced secretory function. 2 hours before meals, 1½ - 2 hours after meals. General developing static and dynamic exercises are mainly in the position of lying on the back and on the side, reclining, sitting. Standing and walking exercises. Breathing exercises. Carefully include exercises with increased intra-abdominal pressure and lying on your stomach. Self-massage of the anterior abdominal wall (includes techniques of stroking, rubbing and kneading).

- With preserved or enhanced secretory function. After the lesson, a meal is required. General development exercises for large and medium muscle groups with a large number of repetitions and a constant change of exercises, swing movements. Exercises for abdominal muscles. Diaphragmatic breathing. Elements of autogenic training combined with complete relaxation. Tempering exercises, contrast shower.

*Contraindications.* With pain syndrome, abdominal exercises are excluded.

In case of gastric ulcer, general developmental exercises (smooth, without jerks) are shown from various starting positions (mainly knee-wrist position, lying on your back, sitting, standing). Exercises for abdominal muscles in combination with breathing and subsequent relaxation. Walking at a slow and medium pace, hiking, swimming, skiing. Elements of autogenic training combined with complete relaxation.

*Contraindications.* With pain syndrome, abdominal exercises, straight leg retractions leading to an

increase in intra-abdominal pressure are excluded; with raising the arms above shoulder level, jerks; full extension of the trunk, turns and tilts to the sides. Fast-paced exercises.

With dyskinesia of the gallbladder and biliary tract, chronic cholecystitis, general developmental exercises, static and dynamic breathing exercises, relaxation exercises are recommended. Drainage exercises on the left side and in the knee-carpal starting position (in some cases – lying on the back, on the right side, sitting and standing) for abdominal muscles in combination with breathing (mainly diaphragmatic) with increased intra-abdominal pressure. It is advisable to combine exercises with techniques of stroking and vibrating massage of the anterior abdominal wall in hypertensive forms of dyskinesia and all massage techniques in hypotonic. Walking. Elements of sports games of medium and low mobility.

**Contraindications.** With pain syndrome, exercises are not performed. Straining, sharp fluctuations of intra-abdominal pressure are excluded. With hyperkinetic form, carefully perform abdominal exercises, with dumbbells, stuffed balls, with straining and holding your breath.

**Diseases of the genitourinary system.**

**Shown.** General developmental exercises for all muscle groups from various starting positions in combination with breathing and relaxation. Mainly use exercises for the abdominal muscles, back, pelvis, muscles of the gluteal region and lumbosacral muscles, pelvic floor, adductor muscles of the hips, diaphragm in the supine, reclining position. With nephroptosis, perform exercises from the starting positions with a raised pelvis. Cyclic exercises: walking, skiing, cycling.

**Contraindications.** Straining and a sharp increase in intra-abdominal pressure are excluded. High-intensity exercises are excluded. With nephroptosis – jumping, running, lifting weights, hanging on the crossbar, lifting the trunk from the supine position. Swimming (cooling the body).

**Diseases of the musculoskeletal system of the spine.**

**Shown.** Formation of correct posture. Exercises at the vertical plane for the education of correct posture. Strengthening of the "muscular corset", exercises for the muscles of the back, abdominal, lumbo-iliac and gluteal muscles in the position of unloading the spine (lying down, knee-wrist). Special corrective symmetrical gymnastic exercises. Corrective gymnastics at the vertical plane, with a gymnastic stick. Static and dynamic breathing exercises, relaxation. Stretching of the spine lying down and half-hanging. Swimming (breaststroke, backstroke). Cyclic exercises: walking, skating, skiing. Hardening. Individually differentiated asymmetric exercises (corrective asymmetric exercises should be selected by a doctor with strict consideration of the localization of the process and the effect of exercises on the curvature of the spine).

**Contraindications.** Running. Jumping. Vises. Twisting of the spine. Strictly individual bends, torso turns and asymmetric exercises.

**Diseases of the musculoskeletal system of the foot**

**Shown.** With flat feet, exercises for the tibial muscles and flexors of the fingers: with resistance, with grasping small objects with the toes and shifting them, rolling a stick (ball) with the soles of the feet in combination with general developmental exercises. The use of a massage mat, foot massagers, walking on objects (dry peas, etc.). Special types of walking for the formation and strengthening of the muscular-ligamentous apparatus of the feet. Strengthening the muscles of the back. Swimming. Before the lesson, it is advisable to conduct a self-massage of the feet.

**Contraindications.** Running. Jumping. Lifting weights.

**Residual effects of traumatic brain injuries are shown.** With residual effects of traumatic brain injuries, exercises to relax the muscles of the neck and shoulder girdle. Exercises for balance and coordination of movements. Restorative exercises. Dosed walking. Breathing exercises. Training of brain vessels using the gravitational factor: bending down, lifting the pelvis from the knee-elbow position, standing on the shoulder blades from the supine position, etc. (perform carefully, at a slow pace in combination with breathing and rest to normalize blood circulation). Self-massage of the neck, head.

**Contraindications.** Running and jumping. Lifting weights. Carefully perform exercises to train the vessels of the brain (at a slow pace) with the permission of a doctor.

**With osteochondrosis,** exercises are shown to relax the muscles of the back, lumbar, gluteal region, legs, cervical spine from the initial position lying on the back or stomach. Strengthening the "muscle corset". Self-massage, especially in the lumbar and sacral region.

**Contraindications.** Exercises with a barbell, with sharp movements, especially back movements. Running and jumping. Fighting. Vises and stops. Aerobics classes. Cooling of the body.

*The organization and methodology of physical education classes in special medical groups has a number of features:*

7.3.1. The gradual increase in physical activity to provide a training effect, the duration of the lesson parts and their modification depends on the nature and severity of structural and functional changes in the body of students caused by the disease, the reaction of the cardiovascular system to physical activity, the period of training, etc. (introductory part 5 min, preparatory 25-35 min, main 30-4 min, final 15-20 min).

7.3.2. Various qualitative and quantitative characteristics of exercises, individually differentiated selection and dosing of exercises depends on the indications and contraindications of existing diseases, the level of functional and physical fitness;

7.3.3. Systematic self-monitoring of those engaged in the reaction of the body to the heart rate load (twice a semester in heart rate and blood pressure) in physical education;

7.3.4. Correction of the curriculum taking into account the adaptation of students to the load, weather, natural and logistical conditions.

The main types of physical culture for students of the special educational department are: cyclic aerobic loads for training the cardiorespiratory system mainly outdoors or in the pool (dosed walking, skiing, swimming, exercise on an exercise bike); strength exercises that train the muscular system; flexibility exercises for training the musculoskeletal system, prevention of osteochondrosis. Individual corrective sets of exercises are mandatory for each student; relaxation exercises that relieve emotional and mental overstrain; breathing exercises that lead to a faster increase in the functional capabilities of the body and allow you to do a much larger amount of physical activity with the least expenditure of energy.

During the exercise, it is necessary to monitor the heart rate for rapid correction of the load. The maximum heart rate in the adaptation period and for untrained students should not exceed 60% of the heart reserve (RS), which is calculated as follows: 190 minus age and minus resting heart rate. With an increase in the functional state of the cardiovascular system, the maximum heart rate in the classroom can reach 80% of the MS. *Physical exercises need to be updated by 10-15% in one lesson, with a repetition of 85-90% to consolidate, since the monotony of the exercises performed can reduce students' interest in physical culture.*

## 8. Educational, methodological and informational support for mastering the academic discipline (printed, electronic publications, the Internet and other network resources)

### 8.1. Key literature references

№	Name according to bibliographic requirements	Number of copies	
		at the department	in the library
1	Edited by V.V. Ponomareva. Physical education and health. Moscow, GO VUNMC of the Ministry of Health of the Russian Federation, 2001	67	
2	N.G. Chekalova et al. Functional reserves of the body of children and adolescents. Methods of research and evaluation. Nizhny Novgorod, publishing house of the Lower NizGMA, 2010	50	

### 8.2. Further reading

№	Name according to bibliographic requirements	Number of copies	
		at the department	in the library
1	Barchukov I.S. Physical culture: methods of practical training: Textbook. M.: KNORUS, 2017. – 304 p.	24	
2	Detkov Y.L., Platonova V.A., Zefirova E.V. Theory and practice of physical culture for students with impaired health: Textbook. St. Petersburg: St. Petersburg State University ITMO, 2008	3	
3	Koval V.I., Rodionova T.A. Hygiene of physical education and sports. Textbook for students of higher educational institutions. Ed. Academia, 2010	7	



4	Gorshkov A.G., Vilensky M.Ya. Physical culture and healthy lifestyle of a student: A textbook for universities. Gardariki, 2007	11
5	Goloshchapov B.R. History of physical culture and sports. Textbook for students of higher educational institutions. Vulture of the Ministry of Defense of the Russian Federation. Academia, 2010	9

### 8.3. Electronic educational resources for teaching academic subjects

#### 8.3.1. Internal Electronic Library System of the University (IELSU)

No	Name of the electronic resource	Brief description (content)	Access conditions	Number of users

#### 8.3.2. Electronic educational resources acquired by the University

No	Name of the electronic resource	Brief description (content)	Access conditions	Number of users

#### 8.3.3 Open access resources

No	Name of the electronic resource	Brief description (content)	Access conditions

## 9. Material and technical support for mastering an academic discipline

### 9.1. List of premises for classroom activities for the discipline

#### 1. Lecture hall

No. 1 (GBUZ NO NOKB named after N. A. Semashko, 190 Rodionov str.);

2. Lecture hall No. 2 (GBUZ NO NOKB named after N. A. Semashko, 190 Rodionov str.);

3. Lecture hall (academic building No. 9, 5a Meditsinskaya str.);

4. Lecture hall (BFC Great Hall, academic building No. 2, 70 Gagarin Ave.);

5. Lecture hall (small hall of the BFC, academic building No. 2, etc.)

### 9.2. List of equipment for classroom activities for the discipline

1. Sports hall (academic building No. 4, 190a Rodionova str.);

2. Sports complex SOK (Medicinskaya str., 5 B)

9.3. The list of equipment: a set of educational furniture; a screen (1 pc.); a multimedia projector (1 pc.); a portable personal computer (1 pc.). Cargo-block simulators; simulators for training with free weights; cardio equipment; dumbbells; barbells . Jump ropes; hoops; volleyball balls; soccer balls; basketball balls; table tennis balls; stuffed balls; volleyball net; gymnastic mats; badminton net; hand pump; roulette; badminton rackets and shuttlecocks; whistles; stopwatches; mini football gates; basketball shields and rings; table tennis tables; first aid kit. Mirrors; ballet machine; fitballs; tatami mats; steps.

#### 9.3. A set of licensed and freely distributed software, including domestic production

Item no.	Software	number of licenses	Type of software	Manufacturer	Number in the unified register of Russian software	Contract No. and date

1	Wtware	100	Thin Client Operating System	Kovalev Andrey Alexandrovich	1960	2471/05-18 from 28.05.2018
2	MyOffice is Standard. A corporate user license for educational organizations, with no expiration date, with the right to receive updates for 1 year.	220	Office Application	LLC "NEW CLOUD TECHNOLOGIES"	283	without limitation, with the right to receive updates for 1 year.
3	LibreOffice		Office Application	The Document Foundation	Freely distributed software	
4	Windows 10 Education	700	Operating systems	Microsoft	Azure Dev Tools for Teaching Subscription	
5	Yandex. Browser		Browser	«Yandex»	3722	
6	Subscription to MS Office Pro for 170 PCs for FGBOU VO "PIMU" of the Ministry of Health of Russia	170	Office Application	Microsoft		23618/HN10030 LLC "Softline Trade" from 04.12.2020

9.4. 8.2. Software: Microsoft Office Professional Plus 2010; Microsoft Windows 7 Starter <https://www.microsoft.com/Licensing/servicecenter/LicensingInfo/LicenseSummary/Summary.aspx>; Kaspersky Endpoint Security for Business – Advanced Russian Edition. License No. 1150-161221-123405-913-167, valid from 01.01.2017 to 31.01.18; Kaspersky Endpoint Security for business – Extended Russian Edition. License No. 1150-180111-064822-207-166, valid from 11.01.2018 to 28.01.2019

**10. List of changes to the working program (to be filled out by the template)**

Federal State Budgetary Educational Institution of Higher Education  
"Privolzhsky Research Medical University"  
Ministry of Health of the Russian Federation  
(FSBEI HE "PRMU" of the Ministry of Health of Russia)

Department of  
*Physical culture and sport*

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**CHANGE REGISTRATION SHEET**

working program for the academic discipline  
*Physical culture and sport*

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Field of study / specialty / scientific specialty: \_\_\_\_\_

(code, name)

Training profile: \_\_\_\_\_

(name) - for master's degree programs

Mode of study: \_\_\_\_\_

full-time/mixed attendance mode/extramural

Position	Number and name of the program section	Contents of the changes made	Effective date of the changes	Contributor's signature
1				

Approved at the department meeting

Protocol No. \_\_\_\_\_ of \_\_\_\_\_ 20\_\_

Head of the Department

\_\_\_\_\_  
department name, academic title

\_\_\_\_\_  
signature

\_\_\_\_\_  
print name