

SYLLABUS

1. General information on the course

Full course name	Physical Rehabilitation, Sports Medicine
Full official name of a higher education institution	Sumy State University
Full name of a structural unit	Academic and Research Medical Institute. Кафедра фізичної терапії, ерготерапії та спортивної медицини
Author(s)	Yezhova Olha Oleksandrivna, Voropaiev Dmytro Serhiiovych
Cycle/higher education level	The Second Level Of Higher Education, National Qualifications Framework Of Ukraine – The 7th Level, QF-LLL – The 7th Level, FQ-EHEA – The Second Cycle
Semester	18 weeks during the 7th semester
Workload	The volume is 5 ECTS credits, 150 hours, of which 36 hours is contact work with the lecturer (36 hours - practical classes), 114 hours of independent work
Language(s)	English

2. Place in the study programme

Relation to curriculum	Elective course available for study programme "Medicine"
Prerequisites	Krok-1
Additional requirements	There are no specific requirements
Restrictions	There are no specific restrictions

3. Aims of the course

to promote the formation of general and professional competencies defined by the educational and professional programme, in particular, the ability to integrate knowledge and solve complex health problems in multidisciplinary contexts and the ability to use information and communication technologies; to form an idea of physical rehabilitation of patients with different nosologies and medical and pedagogical control over people engaged in physical culture and sports.

4. Contents

Module 1. Sports Medicine

<p>Topic 1 Sports medicine, purpose and objectives. The concept of medical control.</p> <p>History of origin and development of sports medicine. The purpose and objectives of sports medicine. The concept of medical control over athletes and people of different ages. Forms of medical control.</p>
<p>Topic 2 Research and evaluation of physical development, basic functional systems of the body and physical performance.</p> <p>The essence of the concept of "physical development", "functional state", "physical performance". Methods of research and assessment of physical development. Methods of research and assessment of the state of basic functional systems. Classification of functional tests. General characteristics of functional tests. Physical performance and basic tests for its determination.</p>
<p>Module 2. Physical Rehabilitation</p>
<p>Topic 3 Theoretical foundations of physical rehabilitation</p> <p>History of formation and development of physical rehabilitation. Law of Ukraine "On Rehabilitation in the Field of Health Care". Principles of rehabilitation. The concept of the rehabilitation system. Types of rehabilitation. The concept of a multidisciplinary rehabilitation team. Rehabilitation periods. Clinical rehabilitation management and its stages: a comprehensive examination, evaluation of collected data, formulation of rehabilitation diagnosis based on disorders of body structure and function, functional limitations (activity limitations) and disability (participation limitations), forecasting and planning of rehabilitation care based on tasks, patient-centered interventions. General characteristics of means of physical rehabilitation, in particular, therapeutic exercises in terms of evidence-based medicine.</p>
<p>Topic 4 Physical rehabilitation for diseases of the cardiovascular and respiratory systems.</p> <p>Characteristics of the stages of clinical and rehabilitation management of patients with diseases of the cardiovascular and respiratory systems. The use of means of physical rehabilitation in terms of evidence-based medicine. The purpose of therapeutic exercises in the most common diseases of the cardiovascular and respiratory systems. Examples of therapeutic exercises.</p>
<p>Topic 5 Physical rehabilitation in orthopedics and traumatology.</p> <p>Characteristics of the stages of clinical rehabilitation management of patients with musculoskeletal disorders. The use of means of physical rehabilitation in terms of evidence-based medicine. The purpose of therapeutic exercises for arthritis/arthrosis, tendinopathy, posture disorders, bone fractures, arthroplasty, etc. Examples of therapeutic exercises.</p>
<p>Topic 6 Physical rehabilitation of patients with neurological diseases.</p> <p>Characteristics of the stages of clinical rehabilitation management of patients with neurological diseases. The use of means of physical rehabilitation in terms of evidence-based medicine. The purpose of therapeutic exercises for neurological disorders; damage to the upper motor neurons, stroke, traumatic brain injury, Parkinson's disease, multiple sclerosis, etc. Examples of therapeutic exercises.</p>

5. Intended learning outcomes of the course

After successful study of the course, the student will be able to:

LO1	Collect information about the general condition of the patient
LO2	Assess the physical development of the patient, the functional state of the main systems of the body, based on the results of laboratory and instrumental studies to assess information about the diagnosis
LO3	Determine the patient's physical performance
LO4	Understand the essence and importance of medical control for monitoring the health status of athletes and people involved in physical culture and sports.
LO5	Know the principles and periods of rehabilitation, main types of therapeutic exercises
LO6	Understand the importance of a multidisciplinary rehabilitation team and the role of a physician in physical and rehabilitation medicine
LO7	Search for necessary information in professional literature and databases, other sources; analyze, evaluate and apply this information

7. Teaching and learning activities

7.1 Types of training

<p>Topic 1. Sports medicine, purpose and objectives. The concept of medical control.</p>
<p>pr.tr.1 "Sports medicine as a science. The purpose and objectives of sports medicine" (full-time course)</p> <p>Sports medicine as a science. History of the origin and development of sports medicine. The purpose and objectives of sports medicine. The study of this topic involves theoretical work in the classroom</p>
<p>pr.tr.2 "Medical control" (full-time course)</p> <p>The concept of medical control. Organization of medical control, a system of medical and sports dispensaries. Medical control over young athletes. Medical control over athletes. Medical control for middle-aged and elderly people. Medical control of women. The study of this topic involves theoretical work in the classroom, acquaintance with the essence of medical control</p>
<p>Topic 2. Research and evaluation of physical development, basic functional systems of the body and physical performance.</p>
<p>pr.tr.3 "Assessment of physical development of persons engaged in physical culture and sports" (full-time course)</p> <p>The essence of the concept of "physical development". Methods of research and assessment of physical development. Methods of an external examination of the human body (somatoscopy). The study of this topic involves theoretical work in the classroom, acquaintance with the methods of research and evaluation of physical development, somatoscopy and interpretation of the data, the use of virtual simulation (watching movies) with further discussion.</p>

pr.tr.4 "Anthropometry" (full-time course)

Anthropometry. Methods of measuring the main anthropometric indicators that characterize physical development. The study of this topic involves theoretical and practical work in the training laboratory, acquaintance with anthropometric techniques and interpretation of the data, the use of virtual simulation (watching movies) with further discussion, the performance of anthropometric measurements.

pr.tr.5 "Goniometry" (full-time course)

Range of movement. Joint mobility. Goniometer. Methods for determining the range of motion in the joints of the upper and lower extremities. The study of this topic involves theoretical and practical work in the training laboratory, acquaintance with the method of goniometry, practice in determining the range of motion in different joints and interpretation of the data, the use of virtual simulation (watching movies) with further discussion.

pr.tr.6 "Assessment of physical development" (full-time course)

Methods of assessment of physical development (anthropometric standards method, index method, correlation method). The general assessment of physical development and recommendations for harmonization or correction depending on its features and identified shortcomings. The study of this topic involves theoretical and practical work in the training laboratory, the practice of skills to assess physical development, calculation of indices of physical development and their evaluation.

pr.tr.7 "Functional tests." (full-time course)

The concept of functional tests. Their classification. Methods of functional tests: with breath-holding during inhalation (Stange's) and exhalation (Genchi's); with a change in body position in space (ortho- and clinostatic); with dosed exercise. Determining the type of response of the cardiovascular system to exercise. Tests to determine physical performance. Calculation of working heart rate. The study of this topic involves theoretical and practical work in the training laboratory, the practice of skills of functional tests, determination of physical performance and interpretation of the obtained data, calculation of working heart rate, determination of chronotropic reserve.

Topic 3. Theoretical foundations of physical rehabilitation

pr.tr.8 "Regulatory framework for rehabilitation in Ukraine" (full-time course)

Law of Ukraine "On the rehabilitation system". Basic concepts and definitions related to the rehabilitation process. Characteristics of the principles and periods of rehabilitation. The concept of a multidisciplinary rehabilitation team, the role of a doctor of physical and rehabilitation medicine in it. The study of this topic involves theoretical work in the classroom, analysis of the regulatory framework for rehabilitation in Ukraine; study and awareness of the role of a physical rehabilitation doctor in a multidisciplinary team.

pr.tr.9 "Clinical Rehabilitation Management of Patients" (full-time course)

The concept of clinical rehabilitation management. Characteristics of the stages of clinical rehabilitation management: (1) comprehensive examination, (2) evaluation of collected data, (3) formulation of rehabilitation diagnosis based on disorders of body structure and function, functional limitations (activity limitations) and disability (participation limitations), (4) forecasting and planning rehabilitation care based on patient-centered tasks; (5) interventions. The study of this topic involves theoretical work in the classroom, acquaintance with the stages of clinical rehabilitation management in the terms of evidence-based medicine, the use of virtual simulation (watching movies) with further discussion.

pr.tr.10 "Therapeutic exercises" (full-time course)

The concept of therapeutic exercises. Their classification. The effect of therapeutic exercises on the human body. Characteristics of therapeutic exercises for stretching, strength, coordination and balance, relaxation, endurance. The study of this topic involves theoretical and practical work in the training laboratory, acquaintance with the types of therapeutic exercises, the performance of the therapeutic exercises for stretching, flexibility, strength, endurance, coordination and balance, the use of virtual simulation (watching movies) with further discussion.

Topic 4. Physical rehabilitation for diseases of the cardiovascular and respiratory systems.

pr.tr.11 "Physical rehabilitation in diseases of the cardiovascular system" (full-time course)

Clinical and physiological justification of the use of therapeutic exercises in diseases of the cardiovascular system. Indications and contraindications to the use of physical rehabilitation. Characteristics of therapeutic exercises for patients with a cardiac profile. Physical rehabilitation programmes for patients with myocardial infarction, coronary heart disease, hyper- and hypotonic diseases. The study of this topic involves theoretical and practical work in the training laboratory, demonstration and implementation of therapeutic exercises in physical rehabilitation programs for this category of patients, the use of virtual simulation (watching movies) with further discussion. There will be a presentation of reports by higher education students on the studied topic.

pr.tr.12 "Physical rehabilitation for diseases of the respiratory system" (full-time course)

Clinical and physiological justification of the use of therapeutic exercises in diseases of the respiratory system. Indications and contraindications to the use of physical rehabilitation. Characteristics of therapeutic exercises for patients with bronchopulmonary pathology. Physical rehabilitation programs for patients with bronchitis, pneumonia, pleurisy, bronchial asthma, chronic obstructive pulmonary disease (COPD). The study of this topic involves theoretical and practical work in the training laboratory, demonstration and implementation of therapeutic exercises in physical rehabilitation programs for this category of patients, the use of virtual simulation (watching movies) with further discussion. There will be a presentation of reports by higher education students on the studied topic.

Topic 5. Physical rehabilitation in orthopedics and traumatology.

pr.tr.13 "Physical rehabilitation in orthopedics and traumatology" (full-time course)

Clinical and physiological justification of the use of therapeutic exercises in diseases of the musculoskeletal system. Indications and contraindications to the use of physical rehabilitation. Characteristics of therapeutic exercises for orthopaedic patients. Physical rehabilitation programmes for patients with arthritis/osteoarthritis, tendinopathy, posture disorders, congenital malformations and deformities of the musculoskeletal system. The study of this topic involves theoretical and practical work in the training laboratory, demonstration and implementation of therapeutic exercises in physical rehabilitation programs for this category of patients, the use of virtual simulation (watching movies) with further discussion. There will be a presentation of reports by higher education students on the studied topic.

pr.tr.14 "Physical rehabilitation in orthopedics and traumatology" (full-time course)

Clinical and physiological justification for the use of therapeutic exercises for trauma, polytrauma. Indications and contraindications to the use of physical rehabilitation. Characteristics of therapeutic exercises for patients with injuries of the musculoskeletal system. Physical rehabilitation programmes for endoprosthetics, bone fractures, spinal injuries, upper and lower extremities, amputations. The study of this topic involves theoretical and practical work in the training laboratory, demonstration and implementation of therapeutic exercises in physical rehabilitation programs for this category of patients, the use of virtual simulation (watching movies) with further discussion. There will be a presentation of reports by higher education students on the studied topic.

Topic 6. Physical rehabilitation of patients with neurological diseases.

pr.tr.15 "Physical rehabilitation of patients with neurological diseases" (full-time course)

Clinical and physiological justification of the use of therapeutic exercises in diseases of the nervous system. Indications and contraindications to the use of physical rehabilitation. Characteristics of therapeutic exercises for patients with a neurological profile (training of sitting, standing, walking, balance and coordination). The study of this topic involves theoretical and practical work in the training laboratory, demonstration and implementation of therapeutic exercises in physical rehabilitation programs for this category of patients, the use of virtual simulation (watching movies) with further discussion. There will be a presentation of reports by higher education students on the studied topic.

pr.tr.16 "Physical rehabilitation of patients with damage to the upper motor neurons" (full-time course)

Clinical and physiological justification for the use of therapeutic exercises for injuries of the upper motor neurons. Indications and contraindications to the use of physical rehabilitation. Characteristics of therapeutic exercises for patients with damage to the upper motor neurons. Physical rehabilitation programmes for patients with paralysis and paresis, muscle weakness. The study of this topic involves theoretical and practical work in the training laboratory, demonstration and implementation of therapeutic exercises in physical rehabilitation programs for this category of patients, the use of virtual simulation (watching movies) with further discussion. There will be a presentation of reports by higher education students on the studied topic.

pr.tr.17 "Physical rehabilitation of patients with neurological diseases" (full-time course)

Clinical and physiological justification for the use of therapeutic exercises in neurological diseases. Indications and contraindications to the use of physical rehabilitation. Characteristics of therapeutic exercises for patients with muscular disorders. Physical rehabilitation programmes for stroke, traumatic brain injury, Parkinson's disease, multiple sclerosis, etc. Examples of therapeutic exercises. The study of this topic involves theoretical and practical work in the training laboratory, demonstration and implementation of therapeutic exercises in physical rehabilitation programs for this category of patients, the use of virtual simulation (watching movies) with further discussion. There will be a presentation of reports by higher education students on the studied topic.

pr.tr.18 "Semester differentiated credit" (full-time course)

Writing a final task consisting of tests and calculation tasks. At quarantine restrictions, the educational platform MIX.sumdu.edu.ua is used

7.2 Learning activities

LA1	Performing individual calculation tasks
LA2	Performing practical tasks
LA3	Preparation for current and final control
LA4	Preparation for practical classes
LA5	A research task on the selected topic
LA6	Defense of research results in the form of a presentation
LA7	Work with textbooks and relevant information sources
LA8	Self-study
LA9	E-learning via Zoom, MIX
LA10	Performance and demonstration of therapeutic exercises
LA11	Watching educational films
LA12	Building practical skills

8. Teaching methods

Course involves learning through:

TM1	Demonstration method
TM2	Method of observation and analysis
TM3	Interactive mini-lectures
TM4	Method of illustrations
TM5	Roleplay
TM6	Team-based learning (TBL)
TM7	Research-based learning (RBL).

Practical classes use an activity approach that contains the above methods. If necessary, the practical class contains mini-lectures lasting up to 10 minutes. In class, students master the skills of collecting information about the general condition of the patient; assessment of physical development, functional status of persons engaged in physical culture and sports; learn to analyze information about the patient's recovery process; determine physical performance, rehabilitation period, the required level of physical activity. In the learning process, role-playing games are used to make students aware of the importance of a multidisciplinary rehabilitation team and the role of a physician in physical and rehabilitation medicine. To prepare a report on a self-selected topic, students search for the necessary information in the professional literature and databases, other sources, learn to analyze, evaluate and apply it.

The study of the discipline develops the ability of students of abstract thinking, analysis and synthesis; ability to learn, master modern knowledge and apply them in practical situations; ability to use information and communication technologies, work in a team.

9. Methods and criteria for assessment

9.1. Assessment criteria

ECTS	Definition	National scale	Rating scale
	Outstanding performance without errors	5 (Excellent)	$170 \leq RD \leq 200$
	Above the average standard but with minor errors	4 (Good)	$140 \leq RD < 169$
	Fair but with significant shortcomings	3 (Satisfactory)	$120 \leq RD < 139$
	Fail – some more work required before the credit can be awarded	2 (Fail)	$0 \leq RD < 119$

9.2 Formative assessment

FA1	Peer assessment
FA2	Testing
FA3	Instructions of the lecturer in the process of performing practical tasks
FA4	Discussion and self-correction of work done by students
FA5	Interviews and oral comments of the lecturer on his results
FA6	Report on the results of practical work
FA7	Performing individual calculation tasks

9.3 Summative assessment

SA1	Defence of the results of the research task on a self-selected topic in the form of a presentation
SA2	Report on the results of practical work
SA3	Writing a final task: differential test

Form of assessment:

7 semester		200 scores
SA1. Defence of the results of the research task on a self-selected topic in the form of a presentation		80
		80
SA2. Report on the results of practical work		40
	testing, interviews, performing individual calculation tasks, demonstration of practical skills, report.	40
SA3. Writing a final task: differential test		80
		80

Form of assessment (special cases):

7 semester		200 scores
SA1. Defence of the results of the research task on a self-selected topic in the form of a presentation		80
		80
SA2. Report on the results of practical work		40
		40
SA3. Writing a final task: differential test		80
		80

When mastering the study material, the student is assigned a maximum of 5 points for each practical lesson (the grade is set in the traditional 4-point grading system). At the end of the semester, the arithmetic mean of student performance is calculated. The number of points of the student is calculated by the formula 40 multiplied by the arithmetic mean and divided by 5. The student must perform a research task and present its results in the form of a report with a presentation, the maximum score is 80 points. The maximum number of points for the current educational activity of the student is 120. The mastering of the academic discipline is completed by writing a differential test in the form of a written final task containing tests and calculation tasks; evaluated at 80 points maximum. Incentive points are added to the grade for the discipline for the implementation of an individual research project (presentation at the conference is 5 points, poster presentation at the conference - 4 points, abstract - 3 points) and for passing relevant online courses - 3 points (provided that the confirmation certificate is presented). The total score in the discipline may not exceed 200 points.

10. Learning resources

10.1 Material and technical support

MTS1	Library funds
MTS2	Medical equipment (tonometer, phonendoscope, height meter, scales, goniometer, etc.)
MTS3	Multimedia, video and audio, projection equipment (video cameras, projectors, screens, smart boards, etc.)

MTS4	Gym machines
MTS5	Kinesiotherapy, physical rehabilitation halls, etc.
MTS6	Sports and wellness equipment (dumbbells, ribbons, mats, fitballs, expanders, the Inclined board “Prophilactor Evminova”, etc.)
MTS7	Information and communication systems
MTS8	Computers, computer systems and networks
MTS9	Software (to support distance learning)

10.2 Information and methodical support

Essential Reading	
1	O'Sullivan Susan B., Schmitz Thomas J., Fulk George D. (eds.) Physical Rehabilitation. 7th edition. — F.A. Davis Company, 2019. — 1505 p.
Supplemental Reading	
2	O'Sullivan, S.B. Improving Functional Outcomes in Physical Rehabilitation [Текст] / S. B. O'Sullivan, T. J. Schmitz. — 2-nd ed. — Philadelphia : F.A. Davis Company, 2016. — 423 p.
3	Frontera, W.R. Essentials of Physical Medicine and Rehabilitation: Musculoskeletal disorders pain and rehabilitation [Текст] / W. R. Frontera, J. K. Silver, T. D. Rizzo. — 3-rd ed. — Saunders Elsevier, 2015. — 919 p.
4	Sports Medicine and Physical Rehabilitation [Текст] / V. F. Moskalenko, V. A. Shapovalova, V. M. Korshak etc. — К. : Книга плюс, 2010. — 168 с.
5	Olkhovik Alina, Yurchenko Oleksandr, Yezhova Olha et al. Applying Physical Therapy on Scleroderma Patients. A Clinical Case . Acta Balneologica / Aluna Publishing. – 2019. – Т. LXI, № 4 (158). – P. 283-288.
6	Yezhova O., Melekhovets O., Sytnyk O. et all. Impact of the multimodal physical program on the endothelium function in diabetic patients with obesity // Acta Balneologica. - 2019. - Tom LXI, 1(155). - p.11-16.
Web-based and electronic resources	
1	Physiopedia: https://members.physio-pedia.com/learn/?utm_source=physiopedia&utm_medium=top_nav_courses&utm_campaign=ongoing_internal
2	Physiotutors: https://www.physiotutors.com/