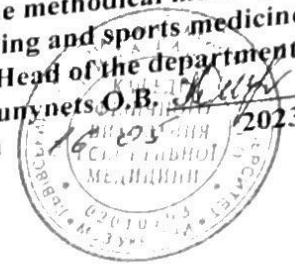


LVIV NATIONAL MEDICAL UNIVERSITY N.A. DANYLO HALYTSKY

Department of Physical Training and Sports Medicine

Approved at the methodical meeting of
the department of Physical training and sports medicine
Head of the department
k.b.s., associate prof. Kunynets O.B.
Protocol № 18 from 16.03.2023



GUIDELINES

in the discipline

PHYSICAL REHABILITATION AND SPORTS MEDICINE

for 4th year students

training of specialists of the second (master's) level higher education in the field of
knowledge 22 "Health" specialty 222 "Medicine" for independent work in
preparation for practical classes

Topic 4 *"The pre-pathological states and diseases at the inefficient engaging in a
physical culture and sport."*

Methodical recommendations are made in accordance with the requirements of the curriculum in the discipline "Physical Rehabilitation and Sports Medicine", compiled to train specialists of the second (master's) level of higher education in the field of knowledge 22 "Health" specialty 222 "Medicine".

According to the curriculum, the study of physical rehabilitation and sports medicine at the medical faculty is carried out in the 4th year of study. The program is designed for 75 hours, of which 30 classroom hours (practical classes), 8 hours - lectures and 37 hours of independent work of students (IWS).

Methodical recommendations prepared by assistant of the department of physical education and sports medicine Marusiak S.V., Candidate of Medical Sciences, associate professor of the department of physical education and sports medicine Leontieva Z.R.

According to the general wording of the head of the Department of Physical Education and Sports Medicine, Candidate of Biological Sciences, Associate Professor O.B. Kunynets.

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Methodical recommendations were discussed and approved
at the methodical meeting
of the Department of Physical Education and Sports Medicine

Protocol № 18 from 16 of May 2023

1. Relevance of the topic: The positive effects of exercises on human health are well known, as is the risk of prolonged physical activity. However, physical activity is useful only when it is not excessive and meets individual capabilities. Deep knowledge of the causes, mechanisms of development, principles of treatment and emergency care in pathological conditions can ensure their prevention and further elimination.

2. Class duration: 2 hours.

3. Learning goal (specific objectives):

To know:

- changes in the basic physiological systems of the body under the influence of physical loads of varying intensity;
- causes, pathophysiological mechanisms and methods of preventions of pre- pathological and pathological conditions, as well as sudden death from irrational physical activity.

To be able:

- detect external signs of varying degrees of fatigue when performing physical exercises;
- to diagnose acute and chronic physical exertion and other diseases arising from inadequate physical activity;
- master the methods of emergency care and treatment of acute and chronic physical stress;
- detections of early signs of diseases and injuries that occur during irrational exercise;
- providing care for acute pathological conditions that occur with inadequate physical activity.

3. Basic knowledge, skills, abilities necessary for studying the topic (interdisciplinary integration):

Anatomy: Know the anatomical structure of the human body, features of the musculoskeletal system and musculoskeletal system.

Physiology: Know the features of the physiological state of the organism after exposure to physical activity normal and pathology. Determine the change in heart rate, blood pressure.

Propaedeutics of internal diseases: To collect the general anamnesis, medical examination of bodies and systems. Perform somatoscopy and anthropometry. Evaluate the results obtained.

Propaedeutics children's diseases: Know the features of physique and physical development in children of different ages.

5. Student advice.

5.1. The list of the basic terms, parameters, characteristics which the student should master at preparation for the class.

1. The concept of acute and chronic physical exertion;
2. Cause of pathological conditions, diseases and injuries during sports.
3. Overtraining, cause stages of overtraining.
4. Cardiac arrhythmia during sports.
5. Hyper and hypertensive conditions during exercise and sports.
6. Cardiomyopathy due to chronic physical exertion, clinical course, stage of treatment, treatment, prevention.
7. Physiological and pathological sports heart.
8. Acute pathological conditions, causes, emergency care.
9. Chronic injuries and overexertion of the musculoskeletal system.
10. The risk of sudden death during exercise and sports.

5.2. Practical works (tasks):

1. Describe the clinic, stages, treatment and prevention of overtraining.
3. Describe the clinic, stages, treatment and prevention of myocardial cardiomyopathy due to chronic physical exertion.
4. Describe the causes and scheme of emergency care in acute pathological conditions during sports.

5.3. Topic content:

There are two groups of reasons resulting in the sportsmen's diseases :

- those, that are unconnected with going in for sports (cooling, overheating, epidemic diseases, various infections).
- those, that are related to going in for sports (admitting to training without medical control, ignoring recommendations of doctor, admitting to training and

competitions in the sick state, failure to observe of admitting terms to training after the carried diseases and traumas, excessive physical activities, harmful habits).

Acute physical overstrain

The acute physical overstrain develops quickly, for a few seconds or minutes at a one - time limit physical load.

Promoting factors: low functional state of the organism, training in a sick state, participation in a competition of post-traumatic illness.

Clinic: vegetative disorders are sharply expressed- appearance of death-damp, nausea, pallor of skin, shortness of breath, strengthening of heard tones; acute vascular insufficiency, collapse, shock, acute heart failure, defeat of respiratory system, kidneys, blood system.

Prophylaxis of defeat:

- prohibition of training in a sick condition;
- admissions to competitions well-trained athletes;
- elimination of sources of chronic infection.

Chronic physical overstrain

Develops as a result of the protracted physical activity

Etiology: violation of regime of work and rest, inappropriate nutrition, psychical traumas, workout during the illness.

Clinic: defeat of the central nervous system (neuroses), defeat of heart (myocardialdystrophy).

Treatment of myocardial dystrophy in the first stage of disease in ambulatory, II and III stage stationary treatment.

Disturbance of cardiac rhythm

Etiology: change in the correlation between excitability and conductivity, on the one hand, and between automatism on the other hand; morphological changes of the myocardium as a result of physical overstrain; infections, intoxications, violation of the metabolic processes, hyperfunction of the heart, different endocrine disorders, allergic diseases.

Tachycardia, bradycardia and sinus arrhythmia are functions violation of automatism and belong to arrhythmias. To violations of rhythm, that the functions of excitability predefined by changes, take extrasystoles.

Treatment: careful medical review with electrocardiography control.

Hyper- and the hypotonic conditions

Going in for sports lead to a decrease in blood pressure. The level of arteriotony dependson character of training process- dynamic physical activities lead to decline pressure, and static- to his increase. The rational going in for sports can not be the reason of increasing of arteriotony.

Diseases of the ear, throat, nose

Among diseases for sportsmen is possible to distinguish such: group of acute respiratory infections (acute catarrh of overhead standard, acute pharyngitis, pharyngolaryngitis); quinsy and quinsy similar diseases; acute and chronic otitis.

Acute laryngitis- violation of phonation, cough, becoming voice rough. Quinsy- pain at swallowing, temperature reaction, throat acute hyperemia. Acute otitis- shooting pain in the whisker, headache, fever.

Diseases and defeat of the nervous system

Diseases and defeat of the nervous system divide to organic and functional. Neuroses belongs to functional.

Organic defeats include a disease and traumas of the central nervous system. Diseases of the peripheral nervous system between sportsmen are more frequent.

Cerebrum traumatic damages divide on: open and closed. Closed damages divide on: concussion, damage and compression.

Diseases of the digestive system

Etiology:

- low-quality and inappropriate nutrition;
- violation of the diet;

- the presence of chronic infection;
- harmful habits;
- violation of the training regimen;
- emotional strain.

From the diseases of digestion organs most frequent are: chronic gastritis, stomach and duodenum ulcer, colitis, enterocolitis, gall-bladder, biliary tract and liver's inflammation.

Hepatic pain syndrome

Hepatic pain syndrome-pathological condition which is clinically manifested as a pain in the projection of the location of the liver.

Etiology: excessive physical activity, disease of gall-bladder and biliary tract. *Clinic:* nausea, disorders, sleepwalking, dizziness, prickly pain in area of heart. *Treatment:* firstly liquidation of pain attack and treatment of syndrome.

Diseases of urinary organs

Diseases that lead to changes of the urine tests for sportsmen are: glomerulonephritis, closed traumas of kidneys, nephroptosis and nephrolithiasis.

During going in for sports kidneys are injured often as a result of hammering in small of back, stomach, suprapubic area, falling on a buttock.

The traumas of kidneys are accompanied by the shock state, hematuria or by formation of haematoma in case of damage of their capsule.

The first aid includes: local application of cold, providing of calmness, antishock measures and urgent hospitalization.

Diseases and violation of the endocrine system

Function insufficiency of bark of adrenal cortex is caused by overtraining.

Adaptation of organism to the changes of terms of environment, including physical activity, is constrained to the thyroid functional state.

High-powered physical activity can result into the changes of immune status that are characterized by the changes of T- and B- systems of immunity, indexes of natural resistance.

Chronic injury and overstrains of musculoskeletal vehicle

During going in for sports the frequent muscle defeats are: partial defeat, total defeat, acute spasm of the muscles, myalgia, myofibrosis, neuro myositis, tendyvitis, myogelosis, bursitis.

Most widespread disease of joints, that appears to sportsmen- arthritis, arthrosis.

During treatment of arthrosis obligatory is prohibition of training, in some cases the training loading are sharply limited on the protracted period.

A risk of oxymortia is during engaging in a physical culture and sport

Reasons that result into the death as a result of physical overstrain can be divided into three groups:

- 1th group-underestimation of diseases from doctor that sportsman had before beginninggoing in for sports (disease of heart).
- 2nd group- diseases that appears as a result of the inefficient, excessive, wrong dosedloading.
- 3rd group- the closed traumas of head, stomach, thorax (concussion of the brain,brain hemorrhage, blow in to the heart area, dug up livers).

Stimulant's concept

Self name - a "stimulant" originates from the English word - that means to give a drug. According to determination of the Medical commission of International Olympic Committee, a stimulant introduction is considered to the organism of sportsmen in anyway (as pricks, pills, at inhalation et cetera)by pharmacological preparations that promote a capacity and sporting result artificially. In addition, to the stimulants and different family manipulations with biological liquids, mine-out with the same aims.

According to this determination, stimulant pharmacological preparation can be considered only in case that it or foods of his disintegration can be certain in thebiological liquids of organism (blood and urine).

Nowadays stimulant facilities take preparations of next five groups:

1. Stimulators (stimulators of the central nervous system, sympathomimetics, analgetics).
2. Drugs (narcotic analgetics).
3. Anabolic steroids.

4. B-blockers.

5. Diuretics.

To the stimulant methods belong:

1. Blood stimulant.

2. Pharmacological, chemical and mechanical manipulations with biological liquids (facilities that mask, adding of aromatic connections to the tests of urine, cannulation, substitution of tests, suppression of selection to urine by buds).

From the point of view, that is arrived at to the effect sporting stimulants can be conditionally divided into two basic groups :

1. Preparations, applied directly in the period of competitions for brief stimulation of capacity, psychical and physical tone of sportsman;

2. Preparations applied during great while training process for the increase of muscular mass and providing of adaptation of sportsman to maximal physical activities.

5.4. Materials for self-control

1) Questions for self-control:

1. The concept of acute and chronic overexertion.

2. Causes of pathological conditions and diseases.

3. Definition of “sudden death during sports”. Causes, pathophysiological mechanisms and methods of prevention.

4. Causes and emergency care for liver pain syndrome.

5. Causes and emergency care for gravitational shock.

6. Causes and emergency care for hypoglycemic condition.

7. Overtraining, causes, stages.

8. Cardiac arrhythmias, methods of prevention.

9. Hyper and hypotonic conditions. Pathophysiological mechanisms, prevention.

10. Cardiomyopatia. Pathophysiological mechanisms, methods of prevention.

11. Determination of “physiological and pathological sports heart”.

12. Chronic injuries and overexertion of the musculoskeletal system. Pathophysiological mechanisms, methods of prevention.
13. Diseases and lesions of the nervous system. Pathophysiological mechanisms, methods of prevention. Causes, methods of prevention.
14. Diseases of the ear, throat and nose. Causes, methods of prevention.
15. Digestive diseases. Pathophysiological mechanisms, methods of prevention.
16. Diseases of the urinary system. Pathophysiological mechanisms, methods of prevention.
17. Diseases and disorders of the endocrine system. Pathophysiological mechanisms, methods of prevention.

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Informational resources

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