THERAPEUTIC PHYSICAL EDUCATION IN INSTITUTIONS OF HIGHER EDUCATION IN UKRAINE

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Summary. Human health is defined as one of the most important social factors, which indicates general health, favorable environmental conditions, and the effectiveness of the education system. A person’s health is closely related to his profession, physical activity, nutrition, habits, nature of rest, psycho-emotional state. Physical training cannot compensate for the effects of bad habits and improper nutrition. A person does not die from a certain disease, but from a lifestyle. Nature and society are not to blame for the occurrence of most diseases, but man himself - his laziness, greed, and ignorance. In order to become healthy, you need your own efforts, which cannot be replaced by anything. Therapeutic physical education (TPE) helps students with a low level of health to adapt to study conditions, as well as to fully restore body functions, or correct health disorders taking into account the physical condition of students. The implementation of forms of exercise training for students in the practice of physical education will increase the level of motor activity, improve the state of health and, as a result, contribute to better training of future specialists. The peculiarity of
**SECTION XXV. PHYSICAL CULTURE, SPORTS AND PHYSICAL THERAPY**

The method of therapeutic physical culture is that it not only improves and strengthens the body, but also has an educational value. The basis of exercise therapy is the wide use of the main biological function of the body - movement.

**Key words:** therapeutic physical culture, student sports, musculoskeletal system, injury, recovery.

**Introduction.** In 1910-1916, the method of modern treatment of injuries with the help of therapeutic physical culture (PE) was initiated. Under the leadership of M.I. Sitenko in 1921, the first children's orthopedic clinic in Ukraine was opened. The works of the doctors of the Kharkiv Medical and Mechanical Institute (1910-1916), A.N. Heymanovich, F.V. Lukeshevycha, V.D. Chaklin under the leadership of M.I. Sitenka in these studies, there is a positive result of treatment of 3,892 patients with industrial and military injuries with the help of physical exercises, physiotherapy and occupational therapy.

Ukrainian professor V.M. Kramarenko published the "Manual on Massage and Therapeutic Gymnastics" in 1911 together with colleagues at the Institute of Physical Treatment Methods in Sevastopol.

The experiment of the Kharkiv Medical and Mechanical Institute became a prerequisite for the organization in Kharkiv (1921) of the first research institute of physical culture. In the decade after 1921. Three institutes of physiotherapy were established in Ukraine: Odesa, Chernihiv, and Feodosia. In 1924, the scientist Y.Y. Kaminsky published a book on exercise therapy and organized a research laboratory, which was later transformed into a branch of the Ukrainian Institute of Physical Education.

In 1932, Y.Y. Kaminsky begins to conduct a course of physical therapy at the medical institute, which in 1934 was reorganized into the first department of this discipline in Ukraine. Academician A.E. became the successor of the case. Shterengerts, the author of more than a thousand scientific works, who created a school of doctors and methodologists in therapeutic physical culture. In 1935, I.M. Sarkizov-Serazini published the first study guide for students on therapeutic physical culture. The teaching of massage and physical therapy is introduced in technical schools and institutes of physical culture. A significant role in the development of exercise therapy belongs to Professor G.Y. Krasnoselsky, who from 1957 to 1969 headed the Department of Medical Control and Physical Therapy of the Kyiv Medical Institute named after O.O. Bogomolets G.Y. Krasnoselsky substantiated the mechanisms of the therapeutic effect of physical exercises, developed regimens for age groups.

In 1994, in the State Institute of Physical Education and Sports and Physical Culture Institutes of Ukraine, the departments of medical physical culture and medical control were reorganized into the departments of physical rehabilitation. Thus, at the Kharkiv Institute of Physical Culture, the "Physical Rehabilitation" department gained particular popularity: many foreign students studied here, especially from the People's Republic of China (China) and the DPRK (Korea). Preventive medicine is highly developed in these countries. The basis of disease prevention in preventive medicine is physical education, sports, and proper nutrition.

In 1997, the qualification characteristics of the profession "Physical rehabilitation specialist" were developed at the Lviv Institute of Physical Culture.
Main part. Distinctive features of the development of therapeutic physical culture at the current stage are the growing role of physical rehabilitation in the system of restorative treatment of patients, scientific justification and development of new methods in the complex treatment of patients of various nosologies, preventive orientation of the body in motor activity.

The main tasks of therapeutic physical education classes. The main tasks of therapeutic physical education (TPE):

- Strengthening health, promoting proper physical development and hardening of the body.
- Increasing the physiological activity of the organs and systems of the body weakened by the disease.
- Increase in physical and mental performance.
- Formation of basic motor skills and skills, vital types of movements provided by the program for this age group.
- Inculcation of skills and education of personal and public hygiene habits necessary in everyday life, study and work.
- Education of moral and willful qualities - discipline, a sense of friendship and sociability, self-respect, internationalism, patriotism, a conscious attitude to public property, perseverance, courage, determination, etc.
- Preparation of students for taking tests from sections of the program and transferring them to the preparatory or main medical group.
- Education of conscious discipline, a sense of tact and politeness.

General basics of therapeutic physical culture.

Therapeutic physical culture is the main means of physical rehabilitation, which uses the means, methods and principles of physical culture for the treatment of diseases and injuries. The goal of treatment is to prevent exacerbation of the disease. Prevention of complications of the disease is a preventive goal. The health goal is to restore the health and working capacity of the sick and disabled.

Physical exercises are the main means of therapeutic physical culture. The main means of therapeutic physical culture are physical exercises [1; 3; 6]. However, there is a more modern definition of physical therapy. It. when exercise therapy together with preventive (prophylactic) medicine uses the main biological functions of the body - movement and factors of nature with therapeutic and preventive goals [2; 8].

Physical therapy differs from other treatment methods in that:

- publicly available;
- natural - based on physical exercises;
- does not have allergic reactions;
- it is easy to dose and study the reaction to load; high emotionality of classes;
- there are few contraindications, and if there are, they are temporary.

The main feature of exercise therapy is the conscious and active participation of the patient in the process of treatment with physical exercises.

Indications for the use of therapeutic physical culture. Due to the various therapeutic effect of physical exercises, positive effect in prevention, treatment and recovery, exercise therapy is indicated for almost all diseases (internal, nervous, children’s, injuries, etc.), and in some cases is the main means of treatment [4; 10].
The development of new methods of exercise therapy at the current stage expands
the possibilities of using physical exercises and allows you to apply movement at an
earlier time. At the current stage, each complex of exercise therapy is developed
individually for each diagnosis and for each person separately. That is, an individual
method is used. Nevertheless, in classes in physical exercise groups for students, the
individual method is used in the main part of the class. Warm-up (preparatory part
of the class) in classes in physical exercise groups is more often done by the group
method. Sometimes there are exceptions due to contraindications according to the
diagnosis, for example, the number of jumps, half-squats, dosage of running in place.
The doctor determines indications for exercise therapy. Based on anamnesis,
laboratory tests, ECG, and other diagnostics, only a doctor makes a diagnosis and
offers exercise therapy.

Contraindications to conducting therapeutic physical culture. Contraindications to the use of exercise therapy are few, in most cases they are of a
temporary nature.

Main contraindications:

• High body temperature (subfibrillar temperature – 37.5-37.7°C is not a
  contraindication).

• Increased ESR (Erythrocyte Sedimentation Rate) – a non-specific blood
  laboratory indicator that reflects the ratio of plasma protein fractions; a change in
  ESR can serve as an indirect sign of an ongoing inflammatory or other pathological
  process. (Above 20-25 mm/hour) of unknown origin.

Exercise therapy can be used for elevated body temperature and ESR during
tuberculosis, exudative pleurisy, and polyarthritis. In these cases, the ESR should gradually
decrease, and the body temperature should normalize.

• Acute infectious diseases (rubella, scarlet fever, etc.).

• Acute pain (causalginic), regardless of the nature, time of its appearance and
  localization.

• In the presence of a foreign body near large vessels and nerve trunks until it
  is removed or encapsulated.

• For malignant and benign tumors before their radical treatment (surgery or
  chemotherapy).

• With psychoses and pronounced oligophrenia.

• In case of body intoxication.

• With the threat of thromboembolism. In the presence of bleeding, or in case
  of its threat during the use of physical exercises.

• With hyperactive- and hypotonic crises.

• In a state of decompensation of the main functional systems, with severe
  irreversible organic diseases (myocardial infarction, ischemic heart disease,
  hypertensive disease of the 4th degree, etc.).

Risk factors include situations in which it is possible to get damaged (injury)
while performing physical exercises. Some risk factors can only be established during
an individual in-depth examination.

Mechanisms of the therapeutic effect of physical exercises on the human body.

There are four main mechanisms of the therapeutic effect of physical
exercises: tonic effect; trophic effect; formation of compensations; normalization of
functions.
The therapeutic effect of physical exercises can be manifested in a complex manner, for example, in the form of a simultaneous tonic and trophic effect. Depending on the specific case and the stage of the disease, you can choose such special physical exercises and such dosage of load, which will ensure the predominant effect of one mechanism necessary for treatment in this period of the disease [5; 9].

The mechanisms of the therapeutic effect of physical exercises allow determining the methods of exercise therapy:

- The method of non-specific therapy involves the reactions of the whole body in response to moving actions.
- The method of pathogenetic therapy affects the general reaction of the organism and the mechanisms of development and course of the pathological process.
- The method of functional therapy stimulates and restores the function of an organ or system in general of the whole organism.
- The method of supportive therapy – supports and develops adaptive processes, preserving the function of the affected system and human activity.

The therapeutic-pedagogical process, which involves the patient's conscious and active participation in the treatment, thus solves certain tasks of self-education and the use of the patient's acquired skills of physical exercises in the subsequent daily life.

Means of therapeutic physical culture. Physical exercise and natural factors include:
- gymnastic exercises;
- ideomotor exercises;
- sports and applied exercises;
- game exercises.

Gymnastic exercises in TPE have their own classification:
- by anatomical feature (for the muscles of the neck, arms, legs, trunk);
- by performance activity (active, passive, active-passive);
- by the nature of the exercises (breathing, corrective, coordination of movements, routine, preparatory);
- with the use of objects and devices (without, with them, on them).

Ideomotor exercises are used during the rehabilitation period for paralysis and paresis, during immobilization, when the patient is unable to actively perform movements [6; 10] ideomotor exercises are performed only in imagination in sending impulses to contracted muscles.

Sports and applied exercises. These include walking, running, jumping, climbing, throwing, crawling (this is what is used in classes). In addition, those sports-examples of exercise that can be used independently outside of classes, for example: swimming, dosed cycling; game exercises. The games are divided into four according to the load of the group: on the spot (immobile); sedentary; mobile; sports games. Other groups of exercises are also distinguished by the nature of the action. For example, stretching exercises.

Dosed climbing - terrenkur, aims to combine walking on a horizontal plane with climbing on hilly terrain and descents in the range of 3-15 degrees. The magnitude
of the physical load in the terenkur depends on the length of the route, the relief of the area, the angle of ascent, the pace of walking, the number of stops [4; 10]. You should walk at a calm pace, breathing evenly. Terenkur is most effective for patients with the consequences of injuries, diseases of the musculoskeletal system, respiratory and nervous systems [2; 7].

In classes with students in PE groups, the terenkur is used in autumn (September-October) and spring (end of March-May). Among the new methods, instead of terenkur, it is possible to use the Scandinavian movement in physical therapy. In non-acute periods of illness, the dosage of recreational running (jogging) involves a combination of running, walking, and breathing exercises, taking into account the diagnosis, the state of general health and well-being at the moment before gradually increasing the duration of running [1; 3].

**Natural factors** – the sun, air, water – are used in physical therapy to resist the body's negative effects of the external environment. Used in the post-hospital period of rehabilitation [4; 9].

**Forms of therapeutic physical culture.** The main forms of exercise therapy:
- morning hygienic gymnastics;
- therapeutic gymnastics;
- independent classes at the place of residence (obligatory after consultation with a doctor and a physical therapy specialist).

Additional forms of exercise therapy are recreational running, mechanotherapy, and occupational therapy [5; 6].

**Morning hygienic gymnastics** is a set of physical exercises, the nature and form of which are varied and depend on the purpose of the classes. Morning hygienic gymnastics is the simplest and most accessible for organizing and conducting independent classes.

**Therapeutic gymnastics** is the main form of physical therapy, which uses physical exercises dosed according to the diagnosis and state of health now and at this stage. Dosed load is the alternation of tension and relaxation of the muscular apparatus and the number of physical exercises and their repetition.

**Self-exercises** at home are, as a rule, of a complex nature, that is, they contribute to the development of the entire complex of physical qualities, as well as strengthen and increase general working capacity.

**Methods of therapeutic physical culture.**
- **Individual method** (small group (6-8 people)); group (13-15 people); advisory.
- **The group method** is the most common. At the same time, one group includes students with similar diseases and a similar functional state. However, if students have different diagnoses, this group is divided into subgroups during classes. Each subgroup is given a load according to their diagnosis, or individually dosed according to the number of executions.
- **The consultative method** is used when the patient is discharged from the hospital, or it concerns independent homework. An exercise therapy specialist offers a complex of exercises with a therapeutic effect, terenkur, after preliminary study and correct execution of the exercise. Heart rate (HR), general condition, recovery process after exercise must be monitored [2].

**Principles of therapeutic physical culture.** The main principles of exercise therapy are:
• Gradual increase in load: from easy to more difficult; from simple to complex; from the known to the unknown.
• Systematicity is the basis of physical therapy during the physical rehabilitation process.
• Consistency is the strict implementation of all methodical rules [1; 3; 9].
The next mode of motor activity becomes possible after stable adaptation to the physical exertion of the previous mode.

**Individualization** - the mode of motor activity is determined based on the individual characteristics of the course of the disease [4; 6; 10].

**Emotionality** – physical therapy has a psychohygienic and psychotherapeutic effect. Regular consideration of efficiency is changes in the state of the body, which can be obtained by subjective and objective indicators.

**Subjective indicators** are sleep, appetite, mood, general well-being, mental tone, work capacity, feeling of pain symptoms.

**Objective indicators** are temperature, indicators of external respiration, functional tests of the cardiovascular system, respiratory system, nervous system, anthropometry [2; 8].

In the construction of personal physical therapy methods, the following must be observed:
- the principle of nosology – an approach to the assessment of the state of health taking into account the characteristics of the disease;
- general training characteristics;
- definition and systematization of special exercises that have a targeted effect on restoring the functions of an organ or affected system;
- rational combination of special physical exercises with general strengthening ones to ensure both general and special load.

The introductory part of exercise allows you to gradually prepare the body for increasing physical load. It mainly uses exercises for small and medium muscle groups of joints, breathing exercises, pull-ups. During the main part, a general training and special effect on the body is carried out, especially if it is combined with the technique of self-massage or massage. In the final part, muscle relaxation exercises, breathing exercises, exercises for small and medium muscle groups, coordination and balance exercises are used.

The volume of physical activity during physical therapy classes. The amount of physical load determines the total physical work that was performed during classes with different forms of physical exercise. If the exercises in exercise were performed using the current method (one by one), then the volume will be determined by the intensity and duration of the exercises. If the exercises were performed using the interval (separation) method, the volume of the load will depend on the intensity of the session.

Types of control of the effectiveness of therapeutic physical education classes. In order to control the physical load, the correct choice of physical exercises, the effectiveness of the chosen method, as well as to quickly make corrections to exercise classes, the following types of control are used: express control; current control; staged control.

Indications, contraindications and risk factors must be taken into account when using exercise therapy. Exercise therapy is recommended for almost all
diseases. In order to achieve not only clinical recovery, but also complete restoration of impaired body functions, it is necessary to start as early as possible and systematically use various means and forms of exercise therapy in general complex treatment [11].

**Conclusions**

Therapeutic physical culture (TPE) uses the basic biological functions of the body for therapeutic and preventive purposes. Physical exercises are the main means of exercise therapy. The use of physical culture for therapeutic purposes has a long history.

Physical exercise and natural factors are among the means of exercise therapy. The main ones are gymnastic exercises, ideomotor exercises, sports and practical exercises, game exercises. The main forms of physical therapy are morning hygienic gymnastics, therapeutic gymnastics itself, independent classes (necessarily after consulting a doctor and a physical therapy specialist). The most common methods of exercise therapy are individual, small group, group and consultative. The principles of physical therapy are systematicity, individualization, and gradualism. Modern forms of exercise therapy are a combination of old and new means and forms of exercise therapy.

Modern physical therapy is a combination of various practices, experience of scientific justifications. Isometric exercises in physical therapy are used to support the muscle corset. Students of technical specialties very often have problems with osteochondrosis of the cervical spine. Corrective gymnastics, vestibular gymnastics, and a specially selected set of physical therapy exercises help students avoid pain.

The process of doing physical exercises in physical therapy is dynamic, because it is constantly necessary to change the training method, increase the physical load taking into account the individual characteristics of the body, adapt it to a certain level of load, and consolidate the obtained results. The result of this systematic work will be the transition from the physical therapy group to the main group (if possible).

Thus, even a brief overview of the possibilities of therapeutic physical education allows us to draw conclusions about the enormous importance it has in a person's life. By doing physical exercises, a person actively participates in the therapeutic and restorative process, which affects his psycho-emotional sphere; affecting the nervous system, the functions of damaged organs are regulated; due to the systematic use of physical exercises, the body better adapts to gradually increasing loads; the most important mechanism of exercise therapy is also its generally tonic effect on a person; therapeutic physical education also has an educational value: a person gets used to systematically performing physical exercises, which becomes his daily habit, contributes to leading a healthy lifestyle.

**References:**
