

Research Journal of Pharmaceutical, Biological and Chemical Sciences

The Biological Value Of The Motor Activity Of A Living Organism.

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ABSTRACT

Currently, physiotherapy exercises are actively used with therapeutic and prophylactic purposes to quickly and fully restore health and prevent complications of the disease, often in combination with other therapeutic agents. At certain stages of treatment, therapeutic physical culture contributes to the prevention of complications caused by prolonged rest, accelerating the elimination of anatomical and functional disorders and the creation of new conditions for the functional adaptation of the patient to the conditions of life. Rationally planned physical exercises act tonic, stimulate the motor-visceral reflexes, help speed up the metabolism in the tissues, activate the humoral processes. With an appropriate selection of exercises, you can selectively affect motor-vascular, motor-cardiac, motor-pulmonary, motor-gastrointestinal and other reflexes, which allows you to increase mainly the tone of those systems and organs in which it is reduced. In modern medicine, the use of physical exercises for therapeutic purposes is a means of conscious and effective intervention in the process of normalization of functions. In various categories of patients, the implementation of special exercises causes a flow of impulses to the internal organs, thereby ensuring the normalization of biochemical and physiological processes. The systematic use of physical exercises can affect the body's reactivity, change both the general reaction of the patient, and its local manifestation. At the same time, those physiological mechanisms that were involved in the pathological process are usually involved in the general reaction of the organism. The choice of exercises is based on the mechanism of their action, taking into account the characteristics of the course of the disease, the age of the patient. When applying therapeutic physical culture, it is necessary to strictly observe the rules of training: individualization (taking into account the age, gender of the patient, nature of the disease); systematic (selection of exercises and the sequence of their application); regularity (daily or several times a day, the use of exercises for a long time); duration (multiple repetition of exercises during the procedure and during the course of treatment); gradual increase in physical activity during the course of treatment (training should be more complicated).

Keywords: therapeutic physical culture, physical activity, rehabilitation, rehabilitation, training.

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INTRODUCTION

Currently, physical therapy (physical therapy) - a method that uses physical culture with a therapeutic and preventive purpose for the rapid and full recovery of health and the prevention of complications of the disease [1-3]. Exercise therapy is usually used in combination with other therapeutic agents against the background of a regulated regimen [4-6].

At certain stages of treatment, exercise therapy helps to prevent complications [7] caused by prolonged rest [8], accelerate the elimination of anatomical [9] and functional disorders [10], preserve, restore [11] or create new conditions [12] for functional adaptation of the patient's body to physical exertion [13,14].

The active factor of physical therapy are specially organized movements (gymnastic, sports and sports, games), which are used as a nonspecific effect in order to treat and rehabilitate the patient [15,16]. This is due to the fact that physical exercise contributes to a pronounced restoration of physical and mental strength [17,18].

Rationally designed physical exercises act tonic, stimulate the motor-visceral reflexes [19], contribute to the acceleration of metabolism in the tissues [20], activate the humoral processes [21,22]. With an appropriate selection of exercises, one can selectively act on motor-vascular [23], motor-cardiac [24], motor-pulmonary [25], motor-gastrointestinal [26] and other reflexes, which allows to increase mainly the tone of those systems and organs in which it is reduced [27].

In modern medicine, the use of physical exercises for therapeutic purposes is a means of conscious and effective intervention in the process of normalization of functions. In various categories of patients, the performance of special exercises causes a flow of impulses to the internal organs, thereby ensuring the normalization of biochemical and physiological processes and restoring overall vitality [28]. The systematic use of exercise can affect the reactivity of the body, change the general and local response of the patient [29]. At the same time, those physiological mechanisms that were involved in the pathological process are usually involved in the general reaction of the organism [30]. The choice of exercises is based on the mechanism of their action, taking into account the characteristics of the course of the disease and the age of the patient.

Objective: to consider the health potential of various types of exercise therapy.

The basics of therapeutic physical training

The effectiveness of physical exercises depends on the nature of the movements, the number of repetitions and involvement in a dynamic process of a particular muscle group (various movements in the small, medium and large joints of the limbs, breathing exercises activate the diaphragm and pectoral muscles) [31,32].

When using exercise therapy, the following training rules should be observed: individualization (taking into account the age, gender of the patient, nature of the disease); systematic (selection of exercises and the sequence of their application); regularity (daily or several times a day, the use of exercises for a long time); duration (multiple repetition of exercises during the procedure and during the course of treatment); the gradual increase in physical activity during the course of treatment (training should be more complicated) [33].

Physical exercises used for therapeutic purposes are divided into gymnastic, ideomotor, sports and applied, exercises in the sending of impulses to muscle contraction, dosed games [34].

Gymnastic exercises

They are specially selected combinations of natural movements for a person, divided into elements. Applying gymnastic exercises, selectively acting on individual muscle groups or joints, one can improve overall coordination of movements, restore and develop physical qualities such as strength, quickness of movements and agility [35].

Gymnastic exercises are classified according to several main features: anatomical, based on activity, the principle of using gymnastic objects and projectiles, by species, and the nature of performance [36].

On the anatomical basis, exercises for the muscles of the neck, trunk, shoulder girdle, upper limbs, abdominals, pelvic floor, lower extremities are distinguished [37].

On the basis of activity, active (performed by the patient himself), passive (performed by an exercise therapy instructor with the patient's volitional effort) and active-passive exercises (performed by the patient himself with the help of an exercise therapy instructor) are distinguished [38].

According to the principle of using gymnastic objects and shells, exercises are isolated without the use of objects and shells, exercises with objects (gymnastics stick, rubber, tennis or volleyball, stuffed ball, with clubs, dumbbells, expanders, skipping rope), exercises on shells (gymnastic wall, inclined plane, gymnastic bench, rings, mechanotherapeutic equipment, parallel bars, crossbar, log) and exercise on simulators [39].

According to the species and the nature of the exercise, there are ordinal and drill, preparatory (introductory), corrective exercises, coordination of movements and in balance, in resistance, breathing, hanging, resting, jumping and jumping, rhythmoplastic exercises [40].

Ordinal and drill exercises organize and discipline patients, developing their necessary motor skills (building, rebuilding, walking, turning in place, other exercises) [41].

Preparatory (introductory) exercises, prepare the body for the upcoming load [42].

Corrective exercises reduce postural defects, correct the deformations of individual parts of the body. Often combined with passive correction (stretching on an inclined plane, wearing a corset, massage) [43]. These include any movement performed from a particular starting position, which causes a strictly local effect [44]. It uses a combination of power stresses and stretching exercises. For example, in severe thoracic kyphosis (stoop), physical exercises are aimed at strengthening the back muscles, stretching and relaxing the pectoral muscles, as well as the muscles of the legs and feet [45].

Exercises on coordination of movements and balance are used for training of the vestibular apparatus (for hypertension, neurological and other diseases). Following initial positions: the main Desk, standing on a narrow square supports, standing on one leg, on tiptoe, with open and closed eyes; with objects and without them. To exercise coordination will also include exercises that household skills lost as a result of a disease: doing up buttons, pinching shoes, ignition of matches, opening lock with a key. Widely used as molding, Assembly of children's pyramids, the compilation of mosaic patterns [46,47].

Exercises in the resistance training used in the rehabilitation period of physical therapy. Helps strengthen muscles, increase their elasticity; have a stimulating effect on the cardiovascular and respiratory systems, metabolism [48].

Breathing exercises (static, dynamic, drainage), are used in all forms of physical therapy. A beneficial effect on the function of the cardiovascular and respiratory systems, stimulate the metabolism and digestive processes. Their soothing effect is used in violation of the nervous regulation of various body functions, for faster recovery when fatigue [49].

Static breathing exercises are performed in various initial positions (without movements of the legs, arms, and body); Dynamic breathing exercises are performed in combination with movements of the limbs and torso [50]. To drainage exercises include breathing exercises specifically aimed at the outflow of exudate from the bronchi; They are used in various diseases of the respiratory system. It is necessary to distinguish between respiratory drainage exercises and positional drainage (specially defined positional initial positions, also aimed at outflow of exudate along the respiratory tract, according to the "trench" principle) [51].

Whis, stops, jumps, jumps - a variety of gymnastic exercises, which are included in the classes of medical physical culture in the recovery period. Performed strictly metered, under the supervision of a physical therapy instructor [52].

Rhythmoplastic exercises are used at the sanatorium and polyclinic rehabilitation stages - for the final restoration of the function of the musculoskeletal system, as well as in the treatment of neurosis,

cardiovascular disease and other systems; performed under musical accompaniment, with a given rhythm and tonality (depending on the functional state of the patient and the type of higher nervous activity) [53, 54].

Exercises to stretch the muscles (stretching), are used to increase the elasticity of the muscular-ligamentous apparatus and muscle relaxation. Also contribute to the restoration of muscle performance after exercise [55].

Exercises in water (hydrocolonotherapy), are increasingly used in exercise therapy. Warm pool or bath water helps to relax muscles, soften soft tissues, increase their elasticity, and reduce spasticity. In addition, water reduces the weight of the body and its individual parts, facilitating the implementation of exercises. Physical exercises in water and swimming are indicated for injuries of the musculoskeletal system, osteochondrosis and spondylosis, disorders of posture and scoliosis, paralysis and paresis, and other suffering [56].

Ideomotor exercises

Also used in exercise therapy (especially at the hospital stage). Performed mentally, they not only cause a weak contraction of the muscles, but also improve their functional state, have a trophic effect. These exercises are used for paralysis and paresis, with prolonged immobilization, when the patient cannot actively perform the exercises [57].

Isometric exercises

The patient is offered to contract and relax the muscles of the immobilized joint while thinking about the movement being performed. These exercises are used for immobilization of the limbs to prevent muscle atrophy, improve blood circulation and metabolism (for example, when applying a plaster bandage on the hip and knee joint, the patient actively reduces the quadriceps muscle without making movements in the knee joint [58,59].

Exercises on simulators

They are increasingly used in exercise therapy in the rehabilitation of patients and the disabled. The use of simulators allows you to accurately dose the load and develop the necessary physical qualities: endurance, muscle strength. For training the cardiovascular system are used: exercise bikes (foot and hand), rowing simulators, treadmills ("treadmill"), ski simulator [60,61].

Sports and applied exercises

Of this group of exercises in exercise therapy, most commonly used are dosed walking, running, jumping, throwing and climbing, exercises in balance, lifting and carrying weights, dosed rowing, skiing, skating, cycling and therapeutic swimming [62,63].

The use of sports and exercise exercises in physical therapy exercises contributes to the final restoration of the injured organ and the organism as a whole, in patients it increases the conscious attitude to physical therapy exercises and self-reliance [64].

Dosed walking strengthens the muscles not only of the lower limbs, but also of the whole organism due to the rhythmic alternation of their tension and relaxation. As a result, blood circulation and lymph circulation, respiration, and metabolism are improved, and it has a tonic effect on the body [65].

Dosed run, evenly develops the muscles of the body, trains the cardiovascular and respiratory systems, improves metabolism and respiratory function. In therapeutic gymnastics classes, running is applied to patients who are sufficiently trained for it with an individual dosage (with careful medical and pedagogical control) [66].

Dosed jumps refer to short-term intensive exercises used during the recovery period with individual dosage (with pulse control) [67].

Exercises in throwing, help to restore coordination of movements, improve the mobility of the joints, develop muscle strength of the limbs and torso, increase the speed of motor reactions. In therapeutic gymnastics, stuffed balls, discs, balls with a loop, grenades are used [68].

Climbing the gymnastic wall and rope, contribute to an increase in mobility in the joints, the development of muscle strength of the trunk and limbs, coordination of movements [69].

Exercises in equilibrium, are used in the defeat of the vestibular apparatus, in the amputation of the lower limb, diseases and damage to the nervous system [70].

Dosed rowing is used in exercise therapy with the goal of general body training, the development of rhythmic movements that contribute to the deepening of breathing, development and strengthening of the muscles of the upper extremities and torso, spinal mobility. Increased intra-abdominal pressure during rowing has a positive effect on the digestive process and tissue metabolism. The use of rowing under conditions of clean, ionized air saturated with water vapor has a healing effect on the body [71].

Rowing classes are appointed in the dosage form, with an indication of short pauses for rest and deep breathing (with medical and pedagogical control).

Dosed skiing, activates the muscles of the whole body, improves metabolism, cardiovascular and respiratory systems, trains the vestibular apparatus, improves muscle tone, improves mood, helps normalize the nervous system [72].

Dosed skating, trains the cardiovascular, respiratory and nervous systems, improves metabolism, develops coordination of movements, strengthens the vestibular apparatus. Appointed in the period of recovery well-trained persons who know how to skate (with medical and pedagogical control) [73].

Dosed therapeutic swimming increases heat transfer, improves metabolism, blood circulation and respiration, strengthens the muscles of the whole body, the nervous system, hardens the body.

Dosed cycling is used with a general health purpose, to strengthen muscles and develop movements in the joints of the lower extremities, trains the cardiovascular and respiratory systems, the vestibular apparatus [74,75].

Games are used in exercise therapy to educate the patient decisiveness, perseverance, quickness, dexterity, courage, discipline; positively affect the activities of all organs and systems. Games include classes at the stage of recovery. All kinds of games are carried out under medical and pedagogical control [76-78].

CONCLUSION

During the use of exercise therapy, prevention of complications caused by prolonged rest is ensured, the elimination of anatomical and functional disorders is accelerated, the adaptation of the patient's body to new conditions of existence is enhanced.

The use of exercise therapy tones, the body stimulates the motor-visceral reflexes, accelerate the metabolism in tissues and enhance the humoral processes. With the right selection of exercises, you can selectively affect motor-vascular, motor-cardiac, motor-pulmonary, motor-gastrointestinal reflexes, restoring the functions of different systems and organs. The systematic use of exercise can increase the body's reactivity.

When applying exercise therapy, it is necessary to strictly observe the rules of training: individualization (taking into account the age, gender of the patient, nature of the disease); systematic (selection of exercises and the sequence of their application); regularity (daily or several times a day, the use of exercises for a long time); duration (multiple repetition of exercises during the procedure and during the course of treatment); gradual increase in physical activity during the course of treatment (training should be more complicated).

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