



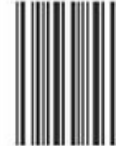
Rehabilitation in nursing in the Republic of Uzbekistan

Tuychiyev L.N., G.K.Xudaykulova., U.E.Eraliyev., N.K.Djurayeva.

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**REHABILITATION IN NURSING IN THE
REPUBLIC OF UZBEKISTAN**

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Toshkent-2023

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Coronaviruses - (Coronaviridae) are a large family of RNA viruses that can infect both animals (their natural hosts) and humans. In humans, coronaviruses can cause a range of diseases, from mild forms of acute respiratory infection to severe acute respiratory syndrome (SARS). Currently, four coronaviruses are known to circulate among the population (HCoV-229E, -OC43, -NL63 and -HKU1), which are present year-round in the structure of acute respiratory viral infections (ARVI), and, as a rule, cause damage to the upper respiratory tract, mild and moderate severity. In the period from 2002 to 2004, the SARS- CoV coronavirus from the genus Betacoronavirus (reservoir - bats, intermediate hosts - camels) for the first time caused the development of an epidemic of the so-called atypical pneumonia - severe acute respiratory syndrome (Severe acute respiratory syndrome , SARS) with a confirmed cause of death for 774 people in 37 countries. Currently MERS-CoV (Middle East respiratory syndrome - Middle East respiratory syndrome) continues to circulate and cause new cases of the disease It is believed that with COVID-19, catarrhal gastroenterocolitis can develop, since the virus affects epithelial cells of the stomach, small and large intestines that have ACE2 receptors. There is evidence of the possibility of specific damage to blood vessels (endothelium), myocardium and kidneys. Changes in immunocompetent organs have not been studied enough. A number of works, based on theoretical premises, postulate the leading pathogenetic role of autoimmune mechanisms. The role of CD147 in SARS-CoV-2 cell invasion is also discussed. It has been established that dissemination of SARS-CoV-2 from the systemic bloodstream or through the plate of the ethmoid bone can lead to brain damage. A change in the sense of smell (anosmia) in patients at an early stage of the disease may indicate both damage to the central nervous system by a virus penetrating through the olfactory nerve, as well as swelling of the mucous membrane of the nasopharynx or viral damage to the cells of the nasal mucosa **coronavirus disease 2019 (COVID-19) pandemic** has placed significant pressure on nurses worldwide as they are on the frontlines of

health care delivery. This study aimed to explore the experiences and challenges of nurses who worked with hospitalized patients with COVID-19.

The severity of the consequences of a viral infection and the time required for rehabilitation correlate with the patient's age, initial health status (history of chronic diseases, physical activity, individual characteristics of the body, immunity), his quality of life and the degree of viral pneumonia. Serious asthenic syndrome after coronavirus, usually caused by several reasons at once, is most susceptible to patients who have undergone mechanical ventilation, have had pneumonia CT-3 and CT-4 with extensive lung damage, or have encountered potentially fatal complications such as acute respiratory distress syndrome, a powerful cytokine storm, heart attack or stroke. Return to normal life and primary rehabilitation in such patients will take more than a month. If weakness and fatigue do not go away within 3–6 months, you should contact a specialized medical specialist (generalist, pulmonologist, cardiologist, psychotherapist, etc.). For patients who have had a relatively mild infection, 1-2 months are enough to get rid of weakness after coronavirus and restore vitality. It is necessary to find out the reason why a recovered patient experiences weakness and increased fatigue without obvious positive dynamics - this can be either ordinary long-term physical inactivity in isolation (the habit of bed rest), or diseases of internal organs without obvious symptoms. If the diagnosis reveals the latter, it is necessary to consult a specialized doctor who will prescribe therapy.

Patients who have suffered viral pneumonia with lung damage need to restore their previous lung capacity - it is recommended to do breathing exercises (see, for

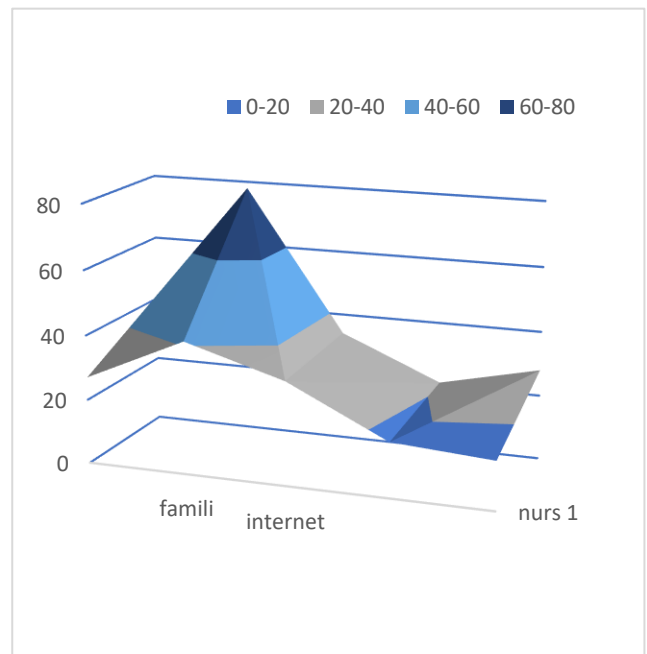
example, Strelnikova's set of exercises), walk in the fresh air, and engage in moderate physical activity (yoga, cycling) . The patient's diet after pneumonia should be rich in antioxidants and vitamins. Swimming in the pool, cold water pond and bathhouse (sauna) is prohibited. Spending time in the sun will help raise the level of important vitamin D. A stay at a sanatorium is recommended. Drinking alcohol and smoking for a patient with signs of viral pneumonia (even if there is no longer a virus in the body) significantly inhibits recovery processes, suppresses the immune system and can lead to the development of complications such as pulmonary fibrosis. The nurses at Zangioten Hospital stressed that a comfortable working environment is paramount to ensure proper care, and they praised the availability of sufficient human resources, other facilities and equipment.

Participants stated that the availability of facilities, especially adequate protective measures, cleaning and bathing facilities, is essential to ensure their safety and professional readiness. The nurses said they stressed that school closures were an additional burden for them as they had to take care of their children, dedicating themselves to full-time care during this crisis. Some participants reported that some hospital managers paid attention to the welfare of nurses.

Factors affecting the quality of work of nurses

Workplace conditions
Family support
The existence of the Internet
Support from colleagues

Participants identified support received from peers, colleagues, family, friends and neighbors as the main branches of their support network. Many junior nurses said that their senior nurses helped them make decisions.. They appreciated the help received from caregivers and junior staff who worked in the same units. Most of the nurses appreciated the support received from the family, psychologically and otherwise. Some nurses said family members encouraged them to go to work.



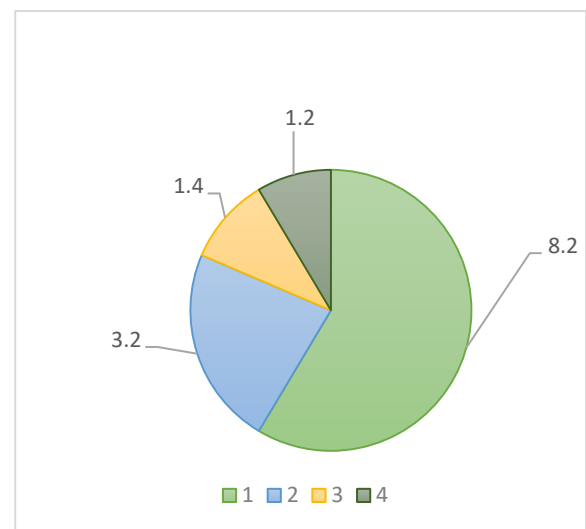
Nurse leaders are highly commended, such as conducting a baseline risk assessment of nurses before being admitted to COVID-19 units, organizing training programs, providing leave, organizing progress meetings, and organizing welfare. Participants stated that the Internet is one of the main sources of information retrieval. They said that websites and YouTube were used not only to gain knowledge, but also to teach the necessary skills. One nurse without prior training said she used videos available on YouTube to learn how to care for COVID-19 patients. “With the support of others, I found out about it by watching a YouTube video.” NIID has developed a video on caring for COVID-19 patients, and many nurses have used it to teach the necessary skills.

Caring for patients with COVID-19 is a great career opportunity for nurses that includes honor and respect. This study reports on the importance of pre-education and training for nurses during pandemics. Lack of knowledge is one of the main causes of insecurity, and training on prevention and control of COVID-

19 can reduce the psychological burden and insecurity among nurses. We have seen significant results in nurses having sufficient knowledge and attending refresher courses before working with patients during a pandemic. In addition to having formal training programs, peer education, access to care guidelines and protocols, self-directed learning, including the use of the Internet and videos such as those developed by NIID, are the primary learning strategies used by nurses. Ensuring the availability of self-paced learning materials and the provision of tools such as the Internet and computers can increase nurses' motivation to learn during health crises.

This study also highlights the support mechanisms available to nurses in the workplace and in their personal lives.

Available workplace support mechanisms include the availability of adequate resources to ensure a safe work environment, social conditions, incentives and incentives, and counseling services. In patient care while minimizing potential contact. The



importance of modern technology in communicating with patients, on-the-job training, and raising public awareness about COVID-19 treatment is highlighted.

Therefore, nurses must be provided with the necessary support and means to effectively use virtual technologies. Skills training, including assessing the patient's non-verbal cues, emotional states and their understanding through virtual technologies, is essential.

Nursing interventions should be:

- Safe and appropriate for the age, health and condition of the client.
- Achievable with available resources and time.
- In line with the client's values, culture and beliefs.
- In combination with other treatments.
- Based on nursing knowledge and experience or knowledge from relevant sciences.

Contact route 9 Version 2 (07/31/2020) transmission occurs during handshakes and other types of direct contact with an infected person, as well as through food products, surfaces and objects contaminated with the virus. It is known that at room temperature, SARS-CoV-2 is able to remain viable on various environmental objects for three days. According to available scientific data, a fecal-oral mechanism of transmission of the virus is possible.

Clinical variants and manifestations of COVID-19: ▪ Acute respiratory viral infection (affects only the upper respiratory tract); ▪ Pneumonia without respiratory failure;

▪ Pneumonia with ARF; ▪ ARDS;

▪ Sepsis; ▪ Septic (infectious- toxic) shock; ▪

Thrombosis; ▪ Thromboembolism;

▪ Hypoxemia (decrease in SpO₂ less than 88%) develops in more than 30% of patients [1]

In 78% of patients with clinical symptoms, the disease occurs in the mild form of ARVI. 22% of confirmed cases reported in the PRC were classified as severe by Chinese health authorities (13% severely ill and 6% critically ill). The average age of patients in China was 50 years, the most severe forms developed in elderly patients (60 years or more), among sick patients such concomitant diseases as diabetes mellitus (in 21% of cases), arterial hypertension (in 15% of cases) were often noted. % of cases), other cardiovascular diseases (14% of cases). [1]. In elderly patients, an atypical picture of the disease may be observed without fever, cough, shortness of breath and does not correspond to the severity of the disease and the severity of the prognosis.

Measures for medical rehabilitation at the 1st stage should include the provision of medical assistance for medical rehabilitation in intensive care and infectious/therapeutic departments departments organized for patients with new coronavirus infections COVID-19, in medical organizations by MDRC specialists who have undergone special training in weaning from artificial pulmonary ventilation (hereinafter referred to as ALV), respiratory rehabilitation, nutritional support, restoration of exercise tolerance, maintenance and management of patients with the consequences of PIT syndrome, formation of motivation to

continue rehabilitation measures, compliance with the anti-epidemic regime and a healthy lifestyle [13,15].

Positioning used: 1. Horizontal supine position 2. Fowler's position (lying on the back on an elevated headboard) 3. Sims' position 4. Side position at an angle of 30 degrees (in the presence of hemiparesis - positioning on the unaffected and affected side) 5. Position on the stomach (prone position) 6. Lying position on the back with the foot end of the bed raised 7. Sitting position on the bed with legs down with full support.

To facilitate breathing, including during sleep, for patients who are able to change your position yourself, you can recommend lying down take a prone position

Instructions for rating on a scale for specialists

Point

	Muscle strength
0	No movement
1	Contraction of muscle fibers is palpable, but there is no visual movement
2	Movements without the influence of gravity
3	Movements under the influence of gravity
4	Movements with external resistance , but weaker than normal
5	Normal muscle strength

Rehabilitation nursing is a set of measures of various activities, both medical and psychological, which is aimed at a speedy recovery of the patient . The task of a nurse in rehabilitation is not only to bring pills to the patient on time and perform medical procedures. Nurses organize the care process so that the patient in the clinic feels comfortable and safe and at the same time is as independent as possible. Provides care to patients in medical institutions and at

home. Sterilizes medical instruments, dressings and patient care items. Assists when a doctor performs therapeutic and diagnostic procedures and minor operations in outpatient and inpatient settings.

Competencies of a rehabilitation nurse:

- ✓ Collecting a detailed medical history of a patient who is in the rehabilitation department.
- ✓ Drawing up and adjusting a plan for rehabilitation procedures. Implementation of the rehabilitation plan in practice.
- ✓ Monitoring the epidemiological condition in a medical facility. If the indicators do not meet the established standards, then the competence of the rehabilitation nurse includes taking measures to normalize them.
- ✓ Caring for patients in the rehabilitation department, implementing medical procedures and measures prescribed by the attending physician.
- ✓ Working with relatives of patients, teaching them specific methods of care that the patient may need when discharged from the hospital for outpatient observation.
- ✓ Organizing the work of junior medical personnel, monitoring their implementation of the patient's rehabilitation plan.

In the process of rehabilitation of various patients, the nurse carries out all stages of the nursing process, namely: initial assessment of the patient's condition; interpretation of the information received; creating a care plan;

final assessment of the achieved result. The activity of a medical article in rehabilitation involves the fulfillment of the following duties within the framework of its professional competence: Identification of the patient's problems - medical, psychological, social, spiritual, everyday.

Identification and assessment of risk factors for the health of the patient and his relatives, consultations on how to reduce their negative impact on the patient's condition.

Diagnosis of violations of the patient's basic needs, drawing up a program of rehabilitation care based on diagnostic, corrective and information-educational methods and technologies of rehabilitation treatment in accordance with medical

prescriptions or independently within the framework of one's professional competence.

Preparing the patient for rehabilitation measures, assisting the doctor in carrying them out. Ensuring infection safety and a safe environment for the patient, his relatives and other health workers during rehabilitation activities and nursing procedures. Carrying out measures to restore the patient's adaptive capabilities, taking into account his physical and mental condition, teaching the patient how to adapt to conditions of limited capabilities, self-care and self-care.

Consulting the patient and his relatives on nutrition and compliance with the medical and health regimen prescribed for the recovery period. Organization and conduct of work in schools for patients on rehabilitation issues.

Carrying out rehabilitation activities in homes and nursing departments. Monitoring patients' compliance with recommendations for restoring impaired body capabilities, physical and mental health, and social status.

Activities of a nurse in rehabilitation

Depending on how severe the patient's condition is, 3 stages of medical rehabilitation are identified. The participation of a nurse in rehabilitation at each stage involves performing various manipulations: caring for the patient; fulfillment of medical prescriptions; identifying the patient's needs and meeting them; performing physiotherapeutic procedures; carrying out exercise therapy and massage; teaching the patient about adherence to the regimen, nutrition, etc.

The goals of rehabilitation after coronavirus infection are to return the patient to normal life, social and work activities as quickly as possible . The main goals of rehabilitation programs are the adaptation of patients to daily physical activity, maximum restoration of lost functions, and stabilization of the psycho-emotional state. When carrying out rehabilitation as part of the implementation of a short-term goal, we strive to restore the ventilation capacity of the lungs, reduce the frequency of attacks of shortness of breath, adapt the lungs to increased physical activity, and expand the motor mode, which is important for stabilizing the psycho-emotional state.

The virus has a detrimental effect on myocardial cells, affects blood clotting, which leads to poor circulation and causes cell hypoxia. The body's fight against the virus weakens the heart muscle and reduces the elasticity of the walls of blood vessels. The consequence may be the development of arterial hypertension, thrombosis, and stroke.

Pneumonia and cardiovascular diseases are serious, but not the only consequences of COVID-19. Each body has its own “weak spots”, and it is on them that the infection most often has its detrimental effect. Quite often, post-Covid syndrome manifests itself in disruption of the gastrointestinal tract, adrenal glands, and genitourinary system.

Many Covid patients require psychological help in addition to physical rehabilitation. Feelings of depression, anxiety, panic attacks, and depression can haunt people for a long time after an illness. Such patients definitely require qualified assistance from specialists.

If, after recovery, a person cannot return to a full life, feels weakness, fatigue, irritability, apathy and other characteristic symptoms of post-Covid syndrome, this is a signal that he needs to undergo rehabilitation, which will take into account specific problems and create an individual program to restore vitality and health .

One of the main rehabilitation measures, especially after pneumonia, is breathing exercises. Properly selected exercises have a beneficial effect on the body's condition, as muscles are strengthened, the airways are cleared of mucus, and the breathing rhythm is corrected. Rehabilitation after COVID-19 is needed for all patients, regardless of the presence and severity of their dysfunction.

For patients who have suffered from COVID-19, the physiotherapy office has developed special recovery programs after coronavirus infection - a set of treatment techniques that, acting together, enhance each other's effect. The program includes physiotherapeutic procedures, therapeutic massage, exercise therapy.

Long-term goals are the prevention of stagnant processes in the body, the prevention of recurrent diseases of the respiratory system, the prevention of vascular complications, thrombosis, and, as a result, a reduction in disability and mortality.

Rehabilitation at stage 1

Rehabilitation at this stage is carried out in the acute period of illness or injury in ICU departments or specialized departments. The role of the nurse in the rehabilitation of patients at this time is to determine the functional deficit and preserved capabilities of the patient, improve his general physical condition, prevent and organize treatment of complications associated with immobilization, as well as identify and correct psycho-emotional disorders. During this period, mobile exercise therapy equipment, equipment for physiotherapy, reflexology, psychotherapy, and speech therapy are used.

A nurse may face a number of general and specific problems. The first includes problems of nutrition, hydration, skin care, prevention of complications - bedsores, aspiration pneumonia, etc. The second includes dysfunction of the pelvic organs in patients with spinal cord injuries, pain and swelling in paralyzed limbs with stroke. Also, the rehabilitation nurse at this stage: strictly carries out medical prescriptions; carries out dynamic monitoring of the patient's psychological and functional state; controls thermoregulation; ensures adequate nutrition and fluid intake; prevents possible airway obstruction; prevents the formation of bedsores.

Stage 1 includes:

- special nutrition that meets the physiological needs of a person;
- special breathing exercises and, if necessary, oxygen support for patients;
- physical exercises in bed or within a ward under the supervision of a physician;
- training the patient to independently implement the rehabilitation program.

Rehabilitation at stage 2

The second stage of medical rehabilitation includes sessions of physical therapy, medical massage, physiotherapy, psychotherapy, and reflexology. Patients with significant functional disorders with the possibility of recovery, but who need outside help with self-care, movement, and communication, are sent to rehabilitation hospitals. At this stage, the rehabilitation nurse is faced with problems of self-care, movement disorders, increased trauma, disorientation, and mental disorders. Limitations in personal care activities are manifested in the patient's inability to independently wash, shave, comb, dress and undress, put on and take off shoes and prostheses, visit the toilet, eat, etc. The task of the rehabilitation nurse is to teach the patient special measures designed to facilitate care themselves, as well as the use of special devices - handrails, seats, crutches, walkers, etc. The nurse also organizes daily occupational therapy sessions, prevents injuries and provides the patient with assistive devices. To prevent a patient from falling and being injured, one should not limit his movements, but should make all types of the patient's activities as safe as possible. The most dangerous in terms of falls are getting out of bed and getting into it, moving without support, transferring to a wheelchair with unlocked wheels, reaching for an object out of reach, the use of stage 2 includes:

- ✓ inhalation with the use of drugs that facilitate the restoration of lung function;
 - ✓ physical and breathing exercises with prolonged forced exhalation;
 - ✓ special physiotherapy to restore the patient's strength;
 - ✓ psychotherapeutic activities with the patient and his family members.
- self-study and maintaining a healthy lifestyle.

Rehabilitation at stage 3

This stage of rehabilitation is carried out on an outpatient basis in the offices and departments of exercise therapy, physiotherapy, reflexology, psychotherapy, medical psychology, speech therapy and defectology. Patients who are independent of others in everyday life and who have retained the ability to move and communicate with others can undergo outpatient rehabilitation. At stage 3, rehabilitation can also be carried out in a day hospital, and for patients in serious condition and with limited mobility - at home. Thus, the nurse's participation in

rehabilitation depends on the problems the patient has. The introduction of the nursing process into the process of medical rehabilitation is necessary for the implementation of professional care, as it improves the quality of the nurse's work and, consequently, the patient's quality of life related to the health condition.

Stage 3 includes:

aerobic training: walking on a treadmill, an exercise bike, walks in the fresh air are recommended;

physiotherapy for the prevention and treatment of complications from the respiratory system;

psychological support, motivating patients to continue independent activities and maintain a healthy lifestyle.

All stages of rehabilitation are certainly important for patients, but at stage 3 the patient's responsibility for his own health plays a particularly important role. The positive effect and rapid recovery largely depend on following the recommendations of the attending physician.

If the patient is disoriented, the nurse should arrange for him to be escorted to the procedure site. Equally important is informing the patient and talking with him. Psycho-emotional disorders can significantly reduce motivation and promote inappropriate behavior, which, in turn, greatly complicates the rehabilitation process. The nurse's task is to correctly set the patient up for the rehabilitation procedure, if necessary, repeat the instructions many times, answer questions, and support his desire for recovery by any means. The psychotherapeutic influence of a rehabilitation nurse on a patient includes a preliminary conversation about the prescribed procedures, support throughout the rehabilitation and a final

conversation. The rehabilitation nurse must know the purpose and essence of any medical prescription, as well as the nature and mechanisms of action of the prescribed drugs and manipulations.

Objectives of rehabilitation after coronavirus infection –

1. Return the patient to normal life, social and work activities as quickly as possible . The main goals of rehabilitation programs are the adaptation of patients to daily physical activity, maximum restoration of lost functions, stabilization of the psycho-emotional state, as well as reducing the risks of diseases of the cardiovascular system, prevention of thrombosis and relapse of the disease.
2. In the process of therapeutic and rehabilitation training, it is important to observe the following physiologically : sound pedagogical principles:
3. And an individual approach to the patient (user) - when developing a rehabilitation program it is necessary to take into account the age, gender and profession of the patient, his motor experience, character and degree of pathological process and functionality of the patient;
4. Awareness is only the conscious and active participation of the patient himself in the rehabilitation process creates the necessary psycho-emotional background and psychological mood of the person being rehabilitated, which increases the effectiveness of the rehabilitation measures used;
5. The principle of gradualness is especially important when increasing physical activity in all its indicators:
6. About the volume , intensity, number of exercises, number of repetitions, complexity of exercises both within a single session and throughout the entire rehabilitation process;
7. Systematicity is the basis of treatment and rehabilitation training throughout the rehabilitation process, sometimes lasting up to several months and years. Only by systematically using various means of rehabilitation can we provide a sufficient, optimal

effect for each patient, which allows us to increase the functional state of the patient's body;

Basic principles of using physical education means in prevention and treatment of diseases, as well as in comprehensive medical and social rehabilitation of patients.

2. The place of physical therapy in staged medical rehabilitation (hospital, clinic, rehabilitation center, sanatorium, group health).
3. Comprehensive assessment of anthropometric data, somatoscopy and health status with drawing up a conclusion on physical development and correction of identified disorders.
4. Issues of organizing physical therapy in hospitals, clinics, sanatoriums and resorts.
5. The relationship between physical therapy and other treatment methods: medication, surgery, physiotherapy, balneotherapeutic, as well as other non-drug methods of therapy.
6. Somatoscopy : morphological features of the body and body types.
7. Definition of the exercise therapy method. Basic mechanisms of therapeutic action physical exercise. Classification of means and forms of exercise therapy.
8. The use of medical tests (functional tests) in determining the functional state of the body, its functional readiness and in determining the physical performance of the patient.
9. Principles of constructing therapeutic gymnastics classes. Methodological dosing techniques in the procedure of therapeutic exercises. Operational and integrative control methods.
10. Clinical and physiological rationale for the use of the exercise therapy method in medical practice. Form of diagrams and notes for exercise therapy classes. Motor modes.
11. Justification and formulation of exercise therapy objectives. Evaluation of the effectiveness of exercise therapy classes. Combination of exercise therapy with other treatment methods.
12. Indications and contraindications for prescribing exercise therapy at different stages medical rehabilitation. Algorithm for prescribing exercise therapy.

13. Basic principles of a phased system of rehabilitation of patients with AMI. Phases (stages) of rehabilitation. Operational and integrative methods of control during physical rehabilitation of patients with cardiovascular diseases systems.
14. Medical massage: mechanisms of influence on the athlete's body.
15. Inpatient and sanatorium stages of physical rehabilitation of patients with AMI. Functional classification of patients with coronary artery disease.
16. Functional state of the nervous and neuromuscular systems. Neurological history. The effect of training on coordination. Deterioration of coordination as an indicator of overtraining.
17. Modern programs of physical rehabilitation of patients with coronary artery disease and acute myocardial infarction. Physical training of patients with coronary artery disease.
18. Static and dynamic coordination and their indicators (Romberg test , finger-nose test, tremorography , stabilography, etc.). The simplest methods for studying sensory systems (analyzers).
19. Planning the educational and training process. Efficiency mark building a training session. Monitoring the dynamics of the patient's functional state during the period of physical rehabilitation.
20. Characteristics of physical activity (volume, intensity, type), causing directed changes in morphofunctional indicators of the cardiovascular system. Setting general and special objectives of exercise therapy depending on the period of the disease.
21. Main indicators of monitoring the effectiveness of physical rehabilitation using exercise therapy for patients with coronary artery disease and acute myocardial infarction.
22. Classification and characteristics of exercise therapy tools used in the rehabilitation of pulmonary patients. Principles of drawing up programs for the correction of respiratory failure.
23. Setting general and special objectives of exercise therapy depending on the period diseases. Selection of adequate means of implementing tasks and formulation methodological instructions.

24. Modern methods of functional research, allowing determine the effectiveness of physical rehabilitation.
25. Features of therapeutic gymnastics techniques used in patients with suppurative and obstructive pulmonary diseases at various stages of rehabilitation.
26. Balneotherapy. Recommendations for use Using the spa factor to restore performance
27. Drawing up stage-by-stage rehabilitation tasks, implemented by means of exercise therapy, for patients with gastrointestinal diseases. The influence of the volume, intensity and nature of physical activity on the functioning of the gastrointestinal tract. Methods for monitoring efficiency.
28. Classification of functional samples and tests. Qualitative and quantitative assessment of testing results.
29. Abrasions, abrasions, wounds. Stopping bleeding, aseptic measures and antiseptics. Soft bandages.
30. The role and place of exercise therapy in the treatment of obese patients.
Principles
formation of an individual rehabilitation complex for obese patients and methods for monitoring the effectiveness of its use.

Ozone therapy

Ozone is a molecular modification of oxygen, consisting of 3 of its atoms and is a colorless gas with a characteristic odor. The ozone molecule is unstable and spontaneously turns into oxygen with the release of heat. The mechanism of action of ozone is associated with the formation of reactive oxygen species, which act as natural physiological activators of many biological functions. As a powerful oxidizing agent, ozone helps stimulate metabolism, has an antihypoxic, immunocorrective effect, improves the rheological properties of blood, reduces general peripheral vascular resistance, normalizes lipid metabolism, and increases the body's nonspecific resistance.

Centimeter wave therapy - therapeutic application electromagnetic waves in the centimeter range. The mechanisms of the biophysical action of centimeter radio waves on biological tissues are not fundamentally different from decimeter waves. At the same time, a significant decrease in the length of the acting waves leads to an

increase in the specific weight of relaxation vibrations of molecules of free unstructured water, side chains of phospholipids and amino acids both in the surface polarization of tissues and in the formation of a displacement current. This is due to the fact that the characteristic relaxation frequencies of these molecules are close to frequency range of centimeter waves, which determines the resonant absorbing their energy. The short wavelength results in a shallower penetration depth of these electromagnetic waves, which is approximately 3-5 cm.

Centimeter waves are also characterized by non-thermal and thermal components of the mechanism of therapeutic action caused by relaxation vibrations of water molecules and amino acids, which manifest themselves mainly in the superficial tissues of the body. Low-intensity centimeter waves, when targeted, stimulate the body's endocrine system – the adrenal cortex, thyroid and pancreas. Activation of the endocrine glands leads to an increase in the blood plasma content of ACTH, growth hormone, cortisol, thyroxine and insulin, and inhibition of the activity of immunocompetent cells. As the intensity of tissue irradiation increases, the function of the sympathoadrenal system is inhibited. Under the influence of high-intensity microwave radiation, heat generation in tissues. At the same time, the temperature of the skin and underlying tissues increases by 1-3°C, and deep-lying tissues by 0.5°C. Centimeter waves enhance regional hemo- and lymphodynamics by increasing blood flow speed, number of functioning capillaries and dilation of small vessels. These processes help accelerate the resorption of cell autolysis products from the inflammatory focus and activate the metabolism and trophism of irradiated tissues. Activation of the microcirculation system leads to a decrease in perineural edema in the pain area and a change in the functional properties of nerve conductors located in the irradiated area. Radio waves in the centimeter range modulate the flow of afferent impulses into the corresponding segments of the spinal cord, thalamo - pituitary centers, which forms the basis for the formation of segmental skin-visceral and skin-somatic reactions. The degree of their manifestation depends on the intensity of the impact and the level of activation of the corresponding reflex mechanisms. In this case, centimeter waves affect the centers of the parasympathetic nervous system, which leads to a decrease in blood pressure and causes bradycardia, and also stimulates the neurohumoral regulation of homeostasis. Activation of the cAMP system and accumulation of prostaglandins increase the intensity of

metabolic processes in irradiated tissues, and increase in Ca²⁺-accumulating capacity of myocardiocyte

Options.

For centimeter wave therapy, electromagnetic waves with a frequency of 2375 MHz (wavelength 12.6 cm) are used and 2450±50 MHz (wavelength 12.2 cm). 87 To carry out the procedures, portable devices SMV-150-1, Luch-11 (with a maximum output power of 150 W), as well as SMV-20-3, Luch-3 and Variation with a maximum power of 20 W are used. Methodology. Two main methods of centimeter wave therapy are used: distant and contact. In the first of them, carried out using the Luch-11 apparatus, the emitters are installed at a distance of 5-7 cm from the patient's body. When using the contact technique (using the Luch-3 device), the emitter is placed directly on the patient's body. Dosing of treatment procedures is carried out according to the output power of the device. With the distant method, low-thermal exposure is carried out at an output power of up to 40 W, medium-thermal exposure is 40-60 W, and high-thermal exposure is 60-80 W. With the contact technique, the indicated degrees of therapeutic effect are achieved with an output power of 3, 4-6 and 7-10 W, respectively. The duration of therapeutic effects carried out daily or every other day is 5-20 minutes, the course of treatment is 5-15 procedures. At If necessary, a repeat course of centimeter wave therapy is prescribed in 2-3 months. Therapeutic effects of microwave therapy (UHF, microwave): anti-inflammatory, secretory, vasodilator, immunoregulatory, metabolic. Indications. Subacute and chronic inflammatory diseases of internal organs (bronchitis, pneumonia, gastric ulcer, cholecystitis, adnexitis, prostatitis), diseases of the cardiovascular system (stage I-II hypertension, renovascular hypertension, post-infarction cardiosclerosis (from 25-28 days of illness), rheumatism with activity not exceeding stage II in combination with heart valve defects without rhythm disturbances and circulatory failure not exceeding stage I, cerebral atherosclerosis), bronchial asthma 88 (allergic and infectious-allergic forms), rheumatoid arthritis, deforming osteoarthritis. Microwave therapy is indicated for subacute and acute inflammatory processes of the maxillofacial area in the presence of exudate outflow, periodontal disease, and jaw fractures. Contraindications. Acute inflammatory purulent processes, pregnancy (when

affecting the abdominal area), tissue swelling and the presence of foreign bodies in the affected area, rest angina, paroxysmal heart rhythm disturbances, gastric ulcer with pyloric stenosis and risk of bleeding, epilepsy.

Gentle regimen - prescribed to patients after achieving stable conditions when using low-intensity loads within 60% of the maximum theoretical heart rate. The task of the motor mode is to adapt the patient to an increase in the intensity of physical activity up to 80% HR_{max} while maintaining an adequate response of the cardiovascular system to the applied load. Morning and therapeutic exercises (see example LH complex No. 3) are carried out according to the same program as in the free motor mode. The main forms of using physical exercises are: morning hygienic gymnastics, therapeutic exercises, training on a bicycle ergometer or treadmill, dosed walking, therapeutic exercises in water at a water temperature above 26-27 °C. Sports games, long-distance excursions, and tourism are excluded.

Gentle- training mode - motor mode, providing adapting the patient to the level of physical activity within 100% of the maximum theoretical heart rate, which corresponds to the average intensity of physical activity, determined by MIC. The time, intensity, and volume of physical exercise used increases. The main forms of using physical exercises are: morning hygienic gymnastics, therapeutic exercises, treadmill training or training on a bicycle ergometer, dosed walking, health path with an elevation angle of 5-10° for a distance of up to 2-3 km for 40-60 minutes, skiing is allowed at a temperature not lower than 10-12°C for a distance of 8-15 km, therapeutic exercises in water at a water temperature above 20°C, rowing for up to 20-30 minutes at a pace of 20-25 strokes per minute. Sports games (volleyball, badminton, tennis, table tennis) are played according to simplified and normal rules.

A training regimen, or a high-load regimen, is prescribed to individuals without significant deviations in health and physical development, with moderate age-related changes and with minimal deviations in the function of the cardiovascular and other systems. This regimen is prescribed to practically healthy, physically active persons who have reached 50-60 years of age (possibly older) and who need active rest. The motor mode provides for the patient's adaptation to physical activity at a submaximal level of intensity, which is determined by the value of MIC. The main forms of physical activity are: morning hygienic gymnastics (UGG), therapeutic exercises, treadmill - training (training on a bicycle

ergometer), dosed walking, health path, skiing, swimming, running, sports games according to general rules.

Modern rehabilitation is a whole range of measures, the main goal of which is to restore a person's physical and mental health, impaired as a result of illnesses, traumatic conditions, and surgical interventions. One of the main directions of medical rehabilitation is the restoration of lost motor functions of the body. Also, a set of modern techniques is aimed at improving the psycho-emotional state, teaching the patient how to adapt to living conditions and life in society under the current circumstances. The development of restorative medicine, its regular improvement, and a step-by-step approach to solving the problem have led to the emergence of its different types. Thanks to this, the patient is supported not only during therapy, but also helps him adapt to life in society. Rehabilitation is classified in accordance with the goals, objectives and methods used. The following types of rehabilitation treatment are distinguished:

1. medical rehabilitation;
2. physical;
3. psychological;
4. social and household;
5. professional.

Medical rehabilitation

This term refers to a whole range of measures, the main goal of which is the maximum possible restoration of the patient's health. As part of medical rehabilitation, medical (including pharmacotherapy), pedagogical, psychological and other measures are used to normalize or compensate for impaired/completely lost functions as a result of illness or injury.

Medical rehabilitation helps the patient return to a normal and familiar lifestyle and return to work.

Physical rehabilitation

This direction involves the use of gymnastic exercises and natural resources to restore a person's physical health and ability to work. Used in conjunction with medical rehabilitation. For physical rehabilitation the following are used:

1. massage;
2. exercise therapy;

3. physiotherapeutic procedures;
4. mechanotherapy;
5. occupational therapy.
6. Psychological rehabilitation

An obligatory part of rehabilitation treatment, allowing a person to believe in his own strength. A serious illness or injury suffered leaves its mark on the patient's psycho-emotional health and can cause withdrawal, depression, and anxiety, which significantly interferes with recovery. The main goal of psychotherapy is to return a person to emotional stability and eliminate aggression in response to the current situation. Psychological rehabilitation includes various methods, including art therapy, hypnosis, cognitive behavioral therapy, and psychological training.

In the psychological and pedagogical direction:

activities in the sensory room; correctional and developmental classes with a speech therapist, a teacher-defectologist, an educational psychologist, including in a computer class, classes are conducted in logorhythmics , art therapy methods are used : music therapy, fairy tale therapy and puppet therapy , including using the computer speech therapy complex "Speech Kaleidoscope" ", display for the visually impaired" Visio book ", "Talking Book" device (tifloflashplayer); classes on household rehabilitation, incl. using Adapt equipment Ability ; classes on creative rehabilitation (working with clay as a method of pedagogical correction: development of creative abilities, thinking, imagination, fine motor skills).

Specialists offer their services: speech therapists, speech pathologists, educational psychologists, social educators, and labor teachers. Social and household rehabilitation The person is adapted to living conditions, specialists teach self-care and mobility skills, and help restore family relationships. The patient is taught to re-do simple daily housework and plan his day. Vocational rehabilitation The person is being prepared to return to professional duties or to any other work activity that corresponds to his capabilities and abilities. Main objectives and principles of rehabilitation It is important to understand that modern rehabilitation not only helps the patient recover from illness and injury, but also prevents the possible development of complications and relapses of the pathology.

Among the main tasks of restorative medicine are:

Early restoration of impaired motor functions and return to professional activities and society; restoration of mental health, positive thoughts and emotions; a person's motivation to continue rehabilitation; adaptation of the patient to living conditions at home and work in the current situation; prevention of the development of possible pathological processes. To carry out competent rehabilitation, specialists adhere to certain principles of the treatment stage - early start, comprehensive application of all available rehabilitation methods - combining classical techniques with innovations, drawing up an individual therapy program, compliance with all stages, regularity and continuity, dosed loads, their gradual increase.

Modern methods of rehabilitation

Regardless of the existing types of rehabilitation treatment, they are all closely interrelated and are used at all stages of therapy. Regarding rehabilitation programs and methods used, these include:

physiotherapy (an important part of rehabilitation treatment, aimed at resuming motor activity, improving metabolism and blood circulation, eliminating inflammatory foci, relieving pain); speech and cognitive therapy (classes with a speech therapist are an important part of recovery after a stroke; with the help of special exercises a person is re-educated speech skills, normalize memory and attention); transcranial magnetic stimulation (modern technology aimed at stimulating the cerebral cortex using short pulses; promotes regeneration of affected areas of the brain); robotic systems and virtual reality (innovative devices and specialized simulators help bedridden patients with severe injuries learn to move again; with the help of robotic devices can restore strength and functionality in the legs and arms).

Role Explanation Rehabilitation Managers : Help plan, organize, coordinate, monitor and evaluate services and resources for employees with injury or illness. A proactively manage the rehabilitation process to achieve return to work results.

The rehabilitation authority, which in most cases is the current employer, is responsible for appointing a person responsible for the rehabilitation of the injured worker. In many workplaces, this occurs when the employee files a claim for compensation. Responsibilities of rehabilitation supervisors The responsibilities of an employee for the vacant position of "Rehabilitation Manager" may include:

- ✓ initiate, coordinate and supervise a rehabilitation program for injured or ill employees in the workplace
- ✓ connect and coordinate people involved in the return to work process
- ✓ promoting the health benefits of good work, early intervention and the organization's approach to return to work
- ✓ encourage the organization to commit to rehabilitation
- ✓ promote early intervention
- ✓ help employers find suitable work for an injured or ill worker
- ✓ engage, where appropriate, and manage workplace rehabilitation service providers
- ✓ coordinate the employer's responses to requests for information about the employee, his injury or illness, and his rehabilitation
- ✓ Maintain appropriate records and ensure that appropriate workers' compensation forms are completed.

Rehabilitation nurses work in hospitals, transitional care facilities, and in patients' homes. They view patients holistically to best care for their patients, providing support physically, emotionally and spiritually to ensure patients are ready to take care of themselves when they need it. This means that nurses must be patient and compassionate, but also know when to push their patients to ensure they progress and get better. **Nurses' skills** include basic nursing care, such as changing bandages and taking vital signs, as well as physical and occupational therapy, and assisting patients with activities of daily living, such as bathing and dressing.

Protect yourself and others:

Get vaccinated as soon as it's your turn and follow the guidance of your local health authorities. Maintain a distance of at least 1 meter from others, even if they appear healthy. Avoid crowded places and close physical contact. If it is impossible to maintain distance from others, or in poorly ventilated areas, wear a mask that fits well to your face. Regularly treat your hands with an alcohol-based hand rub or wash them with soap and water. When coughing or sneezing, cover your mouth or nose with your elbow or a disposable handkerchief. Used handkerchiefs and tissues

should be disposed of immediately and hands should be washed regularly. If you develop symptoms or test positive for COVID-19, stay home and self-quarantine until you recover.

Rules for wearing masks:

The mask must cover the nose, mouth and chin.

Before putting on the mask, after removing the mask, or if you touch the mask, perform hand hygiene. The removed mask must be placed in a clean plastic bag; Fabric masks must be washed daily, and disposable medical masks must be disposed of in the trash. Masks with valves should not be used. More information about masks: [When and how to wear masks](#) [Questions and answers about children wearing masks](#) [Recommendations for heads of institutions and health authorities and medical workers](#) The risk of contracting COVID-19 increases in unventilated, crowded spaces where many people spend long periods of time in close proximity to each other. There are many known outbreaks of infection in crowded settings, often in crowded spaces where people are loudly socializing, shouting, breathing heavily or singing, such as restaurants, choral venues, fitness clubs, nightclubs, offices and departure points. [cult](#).

To make your environment as safe as possible:

Avoid indoor spaces where many people are present at the same time and where physical distancing cannot be maintained. Meet people on the street. Communication outdoors is much safer than indoors, especially in cramped and poorly ventilated spaces. If you cannot avoid being in large crowds or indoors, take the following preventive measures: Indoors, open a window to allow natural ventilation. Wear a mask (see above for more on wearing masks). Small public events Ventilation and air conditioning (recommendations for the population)

Ventilation and air conditioning (recommendations for those responsible for maintaining public places and buildings)

A few hygiene rules:

Regularly and thoroughly clean your hands with an alcohol-based hand rub or wash them with soap and water. This allows you to remove harmful microorganisms, including viruses, from the skin of your hands. When coughing or sneezing, cover your mouth or nose with your elbow or a tissue. The used napkin or handkerchief should be immediately placed in a container with a closing lid and your hands should be washed. Regularly clean and disinfect surfaces, especially those that are touched frequently, such as door handles, faucets, and phone displays.

What to do if you feel unwell

If you feel unwell, the following measures should be taken. If you have a fever, cough and shortness of breath, seek medical attention immediately. If possible, call your doctor first and follow the directions of your local health authorities. Make sure you are aware of the full range of symptoms of COVID-19. The most common symptoms of COVID-19 are a dry cough, fatigue, fever, and loss of smell/taste. Sometimes symptoms such as muscle and joint pain, headache, sore throat, red or irritated eyes, diarrhea, skin rashes, or skin discoloration on the fingers or toes are also present. Stay home and self-isolate for 10 days after symptoms begin and three more days after symptoms disappear. Consult your doctor by phone or call the hotline. Ask friends or acquaintances to go shopping for you. If you need to leave the house or if you live with someone else, wear a medical mask to avoid infecting others. Keep up-to-date information from a reputable source such as WHO or local or national health authorities. Local and national health authorities are the most reliable source of recommendations for individual prevention measures in your city/area. In the process of social and pedagogical rehabilitation, consultations, classes on literacy, numeracy, familiarization with the outside world, conversations on sex education, health care and culture of behavior are held. Teachers use electronic presentations and encyclopedias in their work, and an audio library has been created for those who cannot read. For socio-psychological rehabilitation, the psychologist uses such forms of work as classes in the psychological relief room, art therapy , film therapy , trainings, correctional and developmental classes, consultations.

Rehabilitation institutions

1. All health care facilities
2. Sanatorium-resort institutions
3. Research medical institutions
4. Specialized rehabilitation institutions: rehabilitation offices (departments) of outpatient clinics; rehabilitation rooms (departments) at hospitals; rehabilitation centers (cardiological, neurological, orthopedic);
5. Vocational rehabilitation centers (therapeutic workshops, plant workshops)
6. Social protection institutions (social assistance, departments (offices) of medical and social rehabilitation).

The rehabilitation course at the medical and health complex includes:

1. Kinesiotherapy and breathing exercises;
2. Hyperbaric chamber (breathing air saturated with oxygen);
3. Percussion massage of the chest (restoration of deep ventilation of the lungs);
4. Shock wave therapy (prevention of pulmonary fibrosis);
5. Pressotherapy (improving blood and lymph flow, restoring muscle tone);
6. Aquabike (training the muscles of the lower extremities).
7. All treatments are aimed at restoring strength and improving muscle flexibility, increasing cardio function and endurance, as well as restoring pulmonary function and the respiratory system.

The main goal is therapy, which is aimed at returning to normal life.

Since Covid-19 affects various organ systems, the rehabilitation course is tailored individually for each patient, depending on the specific consequences of the disease and the general condition of the patient. Rehabilitation after Covid-19 can take different durations, depending on the patient's condition and needs . In addition to physical exercises and various techniques, the medical and health complex takes care of a healthy, balanced diet for patients.

Conclusion COVID-19 is a frightening disease with many negative consequences for nurses and their families, with their commitment and professional

responsibilities caring for COVID-19 patients is a new experience that brings personal satisfaction to nurses. It is essential to strengthen these support mechanisms. Previous education and training, as well as proper guidance, are essential to ensure proper care for patients with COVID-19.

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