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## REHABILITATION STRATEGIES FOLLOWING RECOVERY FROM COVID-19 INVOLVE ENHANCING RESPIRATORY HEALTH, PARTICIPATING IN PHYSICAL ACTIVITIES, AND STRENGTHENING THE IMMUNE SYSTEM

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### ABSTRACT

The paper presents the peculiarities of COVID-19, and individualized rehabilitation programs have been chosen to aid patients in preventing complications caused by the coronavirus and in achieving the quickest and highest quality recovery of health.

### KEYWORDS

COVID-19, post-COVID syndrome, recovery period, intense indications of the illness, rehabilitation strategies.

### INTRODUCTION

Rehabilitation in the early stages is much more effective and can significantly reduce the risk of developing post-COVID syndrome. It is a complicated condition after a coronavirus infection, accompanied by a number of different symptoms. Almost all patients need a course of medical rehabilitation after

coronavirus infection (COVID-19), regardless of the severity of the infection. It is carried out under the supervision of a rehabilitation physician and is aimed at restoring the immune system, as well as the functional state of organs and systems. A properly selected rehabilitation program after COVID-19 helps the

patient return to the usual lifestyle and quality of life, improve the emotional state, mood, and performance. It is recommended to begin a course of recovery of the body immediately after stabilization of the condition. The main thing in the treatment of complications after a coronavirus infection is their accurate diagnosis. Coronavirus infection COVID-19 and medications used in its treatment can have a negative impact on individual organs and systems. The reaction to the virus is individual and depends on the state of health and the presence of chronic diseases. Therefore, it is important to timely assess the condition of the body and prevent the development of complications. With coronavirus infection, the respiratory organs are primarily affected, in particular the lungs: the virus causes severe bilateral pneumonia, the consequences of which patients feel for a long time. Even after recovery, intense cough and shortness of breath persist.

Therefore, all patients who have suffered coronavirus pneumonia are recommended to undergo rehabilitation aimed at restoring the respiratory system, physical activity, and maintaining immunity.

Patients who have had COVID-19 in certain cases recover for quite a long time. Many of them experience such post-ovarian symptoms as a feeling of chronic fatigue, intolerance to familiar food, but most often the disease is complicated by disorders of a psycho-neurological nature: depressive and depressed mood, increased causeless anxiety, sleep disorders - and this

is only part of the problems that those who have suffered from the disease. According to statistics, a severe syndrome is observed in 15% of those who have been ill, while its duration varies from 3 to 6 months.

The main symptoms of post- COVID syndrome include:

Hormonal disorders: menstrual cycle failure in women, hair loss, rash on the face and body;

Headaches and dizziness;

Muscle and joint pain;

Shortness of breath and lung problems;

Neurological and psychoemotional problems;

Problems with the organs of vision;

Recurrent pneumonia;

Paresthesia is a disorder of sensitivity and disorders in the work of taste and olfactory receptors;

Disorders of the cardiovascular system (hypertonia, hypotension, arrhythmia);

General disturbances of vital rhythms (sleep inversion).

The symptoms described above can persist in patients for a long time and bring a lot of anxiety. Why is rehabilitation necessary after coronavirus? Often cytokines (the main regulators of cellular processes and stable functioning of the body) continue to fight

infection and destroy the virus even after the outbreak is neutralized. Thus, they begin to attack healthy cells, which negatively affects the functioning of organs such as the lungs, liver, pancreas, brain, digestive system, but mainly the peripheral nervous system. Unfortunately, in practice there are some cases of suicide due to post-COVID depression. Moreover, the peculiarities of the course of the disease itself are in no way related to the occurrence of post-COVID syndrome and its severity. Complications can arise both in those who have had a mild form of the disease, and in those who had to endure the disease in a critical condition. This is why coronavirus necessarily requires rehabilitation, and most survivors are prescribed a sedative spectrum drug, as well as antidepressants.

The program may consist of the following activities:

Pharmacotherapy (use of drugs).

Physical exercises (physical therapy classes, balance exercises).

Cognitive load to restore memory, speech, attention and reaction speed.

Stimulation of the nervous system to achieve autonomic balance.

Physical motor rehabilitation is one of the effective ways to treat post-COVID syndrome and restore the body after an illness; it is based on exercise therapy (physical therapy). Light physical exercise helps

strengthen muscles, stimulate normal blood circulation, improve breathing, and stabilize the psycho-emotional state. First, rehabilitation measures are necessary for those who suffer from disturbances in the activity of the central nervous system, since it is these symptoms that are not always clearly manifested and require detailed research. It is important to note that anyone can encounter neuroses against the backdrop of COVID-19, even those who have never experienced any problems in this area before. These may include sleep disorder, neuralgia, and migraine, panic attacks, and feeling of suffocation, depression and anxiety disorder. From a psychosomatic point of view, the above symptoms can aggravate manifestations at the physiological level. It is important to understand that if you cannot recover on your own, it is recommended to contact specialists who, in accordance with individual manifestations, will develop a set of rehabilitation measures. It is worth noting that old age is also a mandatory requirement for rehabilitation. What is the purpose of the COVID -19-recovery program? The post-COVID rehabilitation program is health improving in nature and is now available in almost every clinic, both private and public. Almost everyone who has been ill is advised to undergo it, regardless of the severity of the disease. It often involves sanatorium-resort treatment, but can also be carried out on an outpatient basis. The goal of this program is quick and effective restoring the body's basic vital systems and psycho-emotional background.

One of the measures included in the rehabilitation course is to neutralize the effects of viral-bacterial etiology (for example, after pneumonia) that cause breathing problems. Next comes restoration of the immune system and hormonal levels, neurological and psychotherapy. Much attention within the framework of rehabilitation is paid to improving the functioning of the cardiovascular system, which also suffers greatly during the coronavirus infection. One of the blocks is always aimed at intensifying the processes of blood circulation and regeneration. Relieving chronic fatigue syndrome is aimed at increasing the body's tolerance to physical activity. The overall statistical medical response from patients for this program is highly positive.

Why do people who have recovered from COVID-19 need diagnostics? The implementation of effective rehabilitation is possible only based on a complete diagnosis of the patient, which can only be carried out in a professional medical institution. Patients undergo a detailed examination, after which, based on data from tests and ultrasound examinations, as well as studies of complications, treatment is prescribed, including both drug support and a complex of physical and psychotherapeutic measures.

Which doctors deal with rehabilitation after COVID? A multidisciplinary team is always working on the development and implementation of a complex of post-COVID rehabilitation. This is due, first, to the fact

that complications manifest themselves individually in each person and can affect all physiological systems. For example, a physical therapy doctor works in tandem with a physiotherapist on muscle pain and joint tissue pathologies. In cases of voice dysfunction or problems with swallowing, a clinical speech therapist, otorhinolaryngologist or swallowing specialist is involved. Disturbances in the activity of the central nervous system can last the longest - a clinical psychologist, neurologist and often a psychotherapist work on this. A very important specialist in recovery is a pulmonologist, who works with disorders of the respiratory system. How long does rehabilitation take? Unfortunately, a magical remedy that can instantly neutralize the consequences has not yet been invented. Recovery may take from 1 month to a year. The complex of rehabilitation measures, as noted above, depends, on the individual characteristics of the body and specific symptomatic manifestations. General recommendations include activities such as:

Exercise therapy (physical therapy and gymnastics).

Breathing exercises, including the use of respiratory simulators.

Massage practices and body-oriented therapy.

Dieting.

Physiotherapy.

Psychotherapeutic treatment

Let's look at some techniques in more detail.

Breathing technique: more scientifically, this technique sounds like pulmonary rehabilitation. This complex should be started as early as possible, before irreversible changes have occurred in the respiratory system of the body. The main task is to restore proper breathing skills and improve general condition by normalizing the level of oxygen in the blood. The exercises themselves develop the strength of the respiratory muscles and diaphragm, and can also be aimed at endurance and overall improvement of the lung function of patients. Saturating the body with oxygen and restoring the functions of its proper distribution significantly improves the general condition of patients and affects the speedy relief from other symptoms. Often, if alternative breathing techniques do not bring the expected results, a method such as “hyperbaric oxygenation” is used in the recovery process. In simple terms, this is hyperbaric chamber therapy, the main purpose of which is to expose the body to oxygen at elevated levels of pressure. This effective method allows you to eliminate the symptoms of hypoxia that develop after the disease.

Another important factor contributing to a speedy recovery is following a diet that includes a comprehensive intake of vitamins, minerals and amino acids. It is the elements that influence the strengthening of the immune system and help the

patient recover faster. The most essential vitamins for post-COVID syndrome are A, D, E, C. Together with the amino acid complex, they compensate for the lack of protein in the body, which affects the production of protective antibodies.

In addition to taking medications and nutritional supplements, it is worth taking care of a varied and proper diet. In order to restore lung tissue and neutralize the effects of taking medications, meals should be fractional and balanced. Nutritionists advise excluding smoked foods, fast food, canned foods and mayonnaise from the menu, as well as strong coffee, tea and alcohol. Particular attention should be paid to the balance of nutrients in the diet. Optimal ratio at the rehabilitation stage:

50% – proteins (animal and vegetable origin);

30% – carbohydrates

20% – fats (primarily unsaturated fatty acids).

It is also recommended to reduce salt intake.

Exercise after hospital discharge: restoring physical activity after an illness also plays a huge role in general rehabilitation and restoration of the respiratory system. As we know, the disease lasts quite a long time, and then it still takes time to overcome the side symptoms. That is why doing exercises plays an important role, but you need to enter into them gradually and carefully. In this aspect, we do not mean



complex fitness loads. Regular walks in the fresh air can be supplemented with a set of basic therapeutic exercises. The only rule is that gymnastics should be performed 30 minutes before meals or 1.5-2 hours after. Make sure the room temperature is comfortable, you can use a humidifier. Restoration of impaired functions of memory, thinking and concentration

As you know, one of the key symptoms that many patients who have had coronavirus experience are disorders of a neurological nature and cognitive functions, such as problems with memory, speed of thinking and concentration. This symptom may especially concern those who suffered a severe illness and were connected to ventilators. After all, as we know, it is the oxygen balance in the body that maintains brain functions in proper condition. Those who require artificial ventilation are often absent-minded, have difficulty remembering information, and have difficulty concentrating. This condition significantly impairs the quality of life. In this case, again, walking and gymnastics have a very beneficial effect. During physical activity, the level of oxygen in the body increases, which accelerates blood circulation and restores brain function. Erudition, attention and attentiveness can be trained by solving crossword puzzles, solving puzzles, and performing mathematical exercises. All this helps restore the cognitive functions of the brain. If independent rehabilitation does not bring the desired results, then you should consult a

specialist and, quite possibly, resort to maintenance drug therapy.

Overcoming stress, anxiety and depression: no matter how strange it may be, coronavirus infection actively attacks the nervous level. Most patients during the rehabilitation period are prescribed antidepressants in order to neutralize neurotic symptoms, which may include various neuroses, panic attacks, anxiety disorders, etc. Asthenia, chronic fatigue syndrome, myalgia and disorientation are also among a number of neurotic post-COVID symptoms. You can try to get rid of psychological disturbances on your own. First, you need to tune in to a positive mood and try to start tracking negative thoughts. All diseases caused by nerves, and this is the truth. From a physiological point of view, the brain that influences all processes occurring in the body, including the frequency of the heart and pulse. Moreover, it works on the psychological model of the world that a person considers for himself. Therefore, our health is in our hands. However, if you cannot get yourself out of a stressful state on your own, it is very important not to delay and turn to specialists. It is quite possible that you will have to undergo psychotherapy and drug therapy.

Treatment or rehabilitation after coronavirus helps the patients not only return to their previous lifestyle, but also must work on all the “risk factors” which exists like overweight, heart problems, cholesterol,

high blood sugar, kidney disease, other chronic diseases. This minimizes the risk of re-infection and severe disease.

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