

# A approaches to rehabilitation of patients with chronic pulmonary pathology

Enfoques para la rehabilitación de pacientes con patología pulmonar crónica.

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## Abstract

**Abstract:** Modern methods of rehabilitation of patients with chronic pulmonary pathology are becoming increasingly important, given the growing number of people suffering from such diseases. This work explores various approaches to the rehabilitation of patients with chronic pulmonary pathology, such as bronchial aseptis, physical rehabilitation, drug treatment, respiratory gymnastics and psychological support. The authors also consider the role of multidisciplinary healthcare teams in providing optimal care and rehabilitation for these patients. The article presents the results of research supporting the effectiveness of various rehabilitation methods, as well as assesses the limitations and challenges faced by patients and medical professionals in the rehabilitation of chronic lung diseases. The conclusions emphasize the importance of early diagnosis and an integrated approach to the treatment of patients with chronic pulmonary pathology. This is an important area of medicine that requires constant improvement and cooperation between medical specialists of different disciplines.

**Keywords:** patients, chronic pulmonary pathology, rehabilitation, multidisciplinary approach.

## Introduction

**Introduction.** Chronic pulmonary pathology is a significant medical problem in the modern world. These diseases are characterized by a long and progressive nature, leading to a decrease in the quality of life of patients and an increase in morbidity and mortality<sup>1</sup>. Rehabilitation of patients with chronic pulmonary pathology is becoming an increasingly urgent task in modern medicine. Effective measures help to improve the functionality of the lungs, reduce the frequency of exacerbations and improve the general well-being of patients. However, rehabilitation in this area includes a variety of approaches and strategies that should be individually selected depending on the type and degree of pulmonary pathology in each patient. The purpose of this work is to consider a variety of approaches and techniques used in the rehabilitation of patients with chronic pulmonary pathology, and to analyze their effectiveness.

In the process of writing this work, articles and publications within the framework of the research topic were analyzed, comparative and analytical research methods were used when writing the work.

**C**hronic pulmonary pathologies are a group of diseases that are characterized by prolonged and often progressive damage to the lungs and bronchial tree. Such diseases are often associated with inflammation, airway obstruction and decreased lung functionality<sup>2</sup>. An important feature of chronic pulmonary pathologies is that patients live with them for a long time, which causes the need for constant medical supervision and care.

Chronic obstructive pulmonary disease (COPD), for example, is characterized by progressive bronchial obstruction and inflammation, which leads to breathing difficulties. Smoking is one of the main causes of COPD. Asthma is a chronic inflammatory disease of the bronchi that can cause attacks of choking and coughing. It often has an allergic nature and can be aggravated by various factors<sup>3</sup>. Bronchiectasia is a condition in which the bronchi expand and lose their elasticity, which contributes to the accumulation of mucus and infections in the respiratory tract.

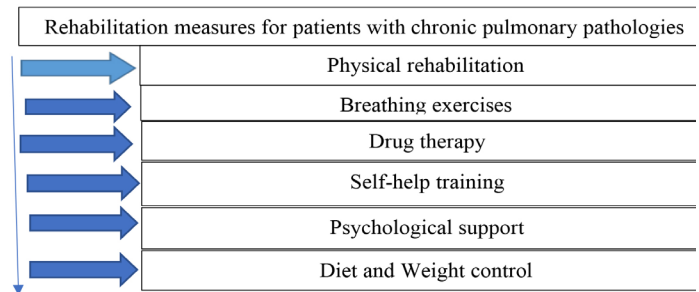
The group of interstitial lung diseases includes a variety of conditions that affect interstitial lung tissue, such as pulmonary fibrosis. Sarcoidosis is a rare disease characterized by the formation of granulomas in the lungs and other organs.

Chronic pulmonary pathologies can lead to various symptoms, including cough, shortness of breath, decreased physical activity and increased vulnerability to infections. Treatment and rehabilitation of patients with chronic lung diseases require drug therapy, physical rehabilitation, breathing exercises and other methods aimed at improving the quality of life and managing symptoms<sup>4</sup>. Earlier diagnosis and effective treatment play an important role

in increasing the duration and quality of life of patients with chronic pulmonary pathologies<sup>5</sup>.

Rehabilitation measures for patients with chronic pulmonary pathologies play an important role in improving the quality of life and managing symptoms. These activities often include the aspects presented in Figure 1.

**Fig.1. Rehabilitation measures for patients with chronic pulmonary pathologies**



Let's look at them in more detail.

1. **Physical rehabilitation.** Physical exercises, including aerobic training, muscle strengthening and gymnastics, help to increase physical activity and strengthen the respiratory muscles. This can reduce the level of shortness of breath and improve overall fitness.
2. **Breathing exercises.** This includes special exercises to improve respiratory function and control breathing, which can help patients cope with shortness of breath and improve the quality of breathing.
3. **Drug therapy.** Doctors may prescribe medications such as bronchodilators, steroids, and other medications to control symptoms and reduce inflammation of the airways.
4. **Self-help training.** Educating patients about the characteristics and management of their diseases can help them better understand their needs and take care of themselves.
5. **Psychological support.** Psychological aspects play an important role in the management of chronic lung diseases. Patients may need the support of psychologists or group sessions to cope with stress and emotional difficulties.
6. **Diet and weight management.** Proper nutrition and maintaining a healthy weight can help manage symptoms, especially in the case of COPD<sup>6</sup>.

Physical rehabilitation is a key measure in providing quality care and improving the lives of patients with chronic pulmonary pathologies<sup>7</sup>. Patients with chronic lung diseases often face a deterioration in physical activity due to shortness of breath and weakness. Physical

rehabilitation includes systematic physical exercises that help strengthen muscles and improve endurance. This may include aerobic exercises, chest strengthening exercises, and stretching.

Respiratory rehabilitation includes special exercises to improve respiratory function and control breathing. This helps patients to better manage shortness of breath and improve breathing efficiency.

It is important to evaluate patients' physical activity and progress during rehabilitation. Monitoring may include the use of physical devices, such as special heart rate monitors, to track physical activity and determine goals.

An important part of physical rehabilitation is teaching patients exercises that they can perform independently in everyday life to maintain and improve their condition. During physical rehabilitation, it is important to have constant medical supervision and adjustment of the program depending on the patient's reaction<sup>8</sup>.

Rehabilitation should be individualized and the characteristics of each patient should be taken into account, including the disease severity, patient's physical condition and his goals. Physical rehabilitation can significantly improve physical activity, lung functionality and the quality of life of patients with chronic pulmonary pathologies. It is an important part of comprehensive rehabilitation and supports patients in their quest to cope with chronic conditions<sup>9</sup>.

Drug therapy is a key component of the management and treatment of patients with chronic pulmonary pathologies. Different diseases may require different types of medications, and the choice of therapy depends on the specific diagnosis and severity of the disease. Here are some types of drug therapy that can be applied:

- bronchodilators. These medications widen the airways and make breathing easier, which is useful for patients with COPD and asthma. Bronchodilators can be short-acting (used for exacerbations) and long-acting (used to maintain);
- glucocorticoids. These are anti-inflammatory drugs that are often used for asthma and other lung diseases associated with inflammation;
- mucolytics and expectorants. These drugs dilute mucus and promote its removal from the respiratory tract, which is useful for bronchiectasia and other diseases accompanied by the formation of mucus;
- antibiotics. Bronchiectasia and other lung infections may require antibiotics to fight bacterial infections;
- antihistamines. With the allergic nature of the disease, such as allergic asthma, anti-allergic medications can be used;
- inhalation medications. Inhaled forms of medicines al-

low you to directly deliver the medicine into the respiratory tract, providing fast and maximum action.

Drug therapy should be prescribed by a doctor and individualized to the specific needs of each patient<sup>10,11</sup>. Patients should follow the instructions for taking medications and regularly communicate with a doctor to assess the effectiveness and correct therapy if necessary<sup>12</sup>.

Self-help training is an important part of the rehabilitation of patients with chronic pulmonary pathologies. This helps patients to better manage their conditions, reduce the risk of exacerbations and improve their quality of life.

Patients should be provided with information about the nature and mechanisms of their disease development. This helps them better understand why they need to monitor their health and follow the recommendations of doctors. Also, patients need to be trained in methods of managing symptoms, such as shortness of breath, cough and mucus formation. This may include breathing exercises, medication use, and other strategies<sup>13</sup>.

Patients should be given instructions on the correct medication intake, including dosage and frequency of administration. This is important to achieve optimal results from therapy. It is also important to be able to recognize factors that can worsen their condition and avoid them. For example, if allergens cause exacerbations, patients may need to avoid contact with them<sup>14</sup>.

Self-help training helps patients feel more confident in managing their illnesses and improving their quality of life. This is an important part of comprehensive rehabilitation for patients with chronic pulmonary pathologies.

Psychological support is an integral part of the rehabilitation of patients with chronic pulmonary pathologies. These conditions can have a serious impact on the psychological state of patients, causing stress, depression, anxiety and other emotional problems. In particular, patients are given the opportunity to consult with a psychologist or psychiatrist. During the sessions, they can discuss their emotional reactions to the disease, learn strategies for coping with stress and develop plans to improve their psychological state.

Group sessions can be useful for patients, as they can communicate with others facing similar problems. This helps patients to feel that they are not alone in their difficulties<sup>15,16</sup>.

Educational programs can help patients better understand the psychological aspects of their disease and learn how to manage stress and emotional reactions. It is important to include the patient's family and loved ones in the process of psychological support, as they can play an important role in maintaining the patient and his psychological comfort.

In the process of organizing rehabilitation measures, difficulties and problems may arise related to the nature and management of chronic lung diseases.

Chronic pulmonary pathologies, such as COPD, asthma and pulmonary fibrosis, have a high prevalence in the world. Managing these conditions and ensuring the rehabilitation of a large number of patients is a significant challenge for the healthcare system<sup>17</sup>.

Diagnosis of chronic lung diseases can be difficult, and many patients receive an accurate diagnosis only after many years of examination. This may delay the start of treatment and rehabilitation.

Effective rehabilitation of patients with pulmonary pathologies often requires a multidisciplinary approach, including cooperation between doctors, physiotherapists, psychologists and other specialists. Ensuring such cooperation can be a challenge.

Many patients with lung diseases should actively participate in the management of their conditions. But many of them may face difficulties in applying long-term changes in their lives and following the recommendations<sup>16</sup>. Patients with chronic pulmonary pathologies may face social and psychological difficulties, including depression, anxiety and stigmatization<sup>18</sup>.

Solving these problems requires joint efforts on the part of medical specialists, patients, researchers and healthcare systems to optimize rehabilitation processes and improve the quality of life of patients with chronic lung diseases<sup>19</sup>.

To solve the problems associated with the rehabilitation of patients with chronic pulmonary pathology, a number of strategies can be applied:

- early diagnosis and provision of information to patients about the disease, its characteristics and the importance of rehabilitation. This will allow patients to start the rehabilitation process earlier;
- facilitating the cooperation of medical specialists of different fields (doctors, physiotherapists, psychologists, social workers) to develop individual rehabilitation and medical care plans;
- creation of educational programs for both medical personnel and patients to improve understanding of chronic lung diseases, their management and psychological aspects;
- helping patients learn self-help skills, including symptom management, medication use, physical activity planning and emotion management;

– providing access to psychological care for patients facing emotional and psychological difficulties;

– the use of telemedicine and remote technologies to ensure the availability of medical care and consultations, especially for patients who cannot visit hospitals in person<sup>18</sup>.

Digital technologies play a significant role in improving the rehabilitation of patients with chronic pulmonary pathology. Digital technologies allow patients and medical staff to communicate remotely. This is especially useful for patients who have limited access to medical care, or for those who cannot personally visit the hospital. Doctors can conduct online consultations, and patients can remotely provide information about their condition.

Health monitoring devices and applications can help patients monitor their physical indicators, such as blood oxygen levels, respiratory rate and pulse. This allows you to more accurately assess the patient's condition and respond to changes.

Digital resources such as websites, apps, and video tutorials can provide information about diseases, rehabilitation methods, and self-help. Patients can access educational materials and recommendations at any convenient time.

Mobile apps can help patients follow medication recommendations, perform breathing exercises, and keep diaries of symptoms. This helps to improve self-help and condition management. Digital platforms can provide access to psychological support in the form of online therapy or group sessions, which is especially important for patients facing emotional problems.

Electronic medical records and information exchange platforms allow different specialists, such as doctors, physiotherapists, psychologists and social workers, to work together on patient rehabilitation and exchange information. Social networks and online forums can provide patients with the opportunity to communicate with others facing the same problems and share experiences.

The use of digital technologies contributes to a more effective and accessible rehabilitation of patients with chronic pulmonary pathology, providing them with information, support and opportunities for self-help.

**R**ehabilitation of patients with chronic pulmonary pathology is an important and multifaceted process that aims to improve the quality of life, manage symptoms and reduce the risk of exacerbations. Chronic pulmonary pathologies, such as chronic obstructive pulmonary disease (COPD), asthma, bronchiectasia and pulmonary fibrosis, have different characteristics, but all of them can significantly limit the functionality of the lungs and the quality of life of patients.

Effective rehabilitation of patients with chronic lung diseases requires a multidimensional approach, which includes physical rehabilitation, drug therapy, self-help training, psychological support and health monitoring.

Psychological support plays an important role in the rehabilitation of patients, as many face emotional and psychological problems associated with their disease. Psychological help and support allow patients to better cope with stress and anxiety.

Digital technologies such as telemedicine, health monitoring, educational platforms and mobile applications can significantly improve access to medical care, education and support for patients with chronic lung diseases. Rehabilitation should be individualized and take into account the characteristics of each patient, including the degree of the disease, physical form and psychological state.

Solving the problems associated with the rehabilitation of patients with chronic pulmonary pathologies requires the joint efforts of medical specialists, patients, researchers and healthcare systems. Providing high-quality rehabilitation and support for patients with chronic lung diseases is an important task for healthcare and society as a whole, and it contributes to improving the quality of life and increasing the life expectancy of this category of patients.

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