

# Particularities of Multidisciplinary Approach in Physical Therapy

## Cechy charakterystyczne wielodyscyplinarnego podejścia w fizjoterapii

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### SUMMARY

**Aim:** The aim of the work was to reveal the peculiarities of implementation of a multidisciplinary approach in a system of physical therapy.**Materials and Methods:** Theoretical analysis and systematization of data of scientific-methodical literature, data of Internet network.**Conclusions:** Implementation of the rehabilitation program is defined as a comprehensive task that requires participation of a team of specialists, where everyone has a list of specific and interchangeable functions. Each of the specialists in the multidisciplinary team is responsible for the patient. At the same time, building of the rehabilitation program, choosing of strategies and means are subordinated to the commonly developed goal.**Key words:** rehabilitation, multidisciplinary approach in physical therapy, stroke and cancerous diseases, infantile cerebral palsy (ICP), dystrophic lesions of the spine**Słowa kluczowe:** rehabilitacja, multidyscyplinarne podejście w fizjoterapii, udar mózgu i choroby nowotworowe, dziecięce porażenie mózgowie, zmiany dystroficzne kręgosłupa

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### INTRODUCTION

Nowadays, one of the most important and socially significant areas of modern medicine is rehabilitation, which gains more and more development every year, attracting significant number of specialists (researchers, physical therapists, psychologists, correctional teachers) around the world.

Analysis of data from recent publications, seminars and conferences conducted on the problems of assisting people with disability and various diseases, points out the need to revise usual set of techniques and methods of physical therapy, approaches in drawing up plans of interventions and evaluation of their effectiveness.

The modern model of rehabilitation requires consideration of assessment of motor disabilities' severity. Given this assessment, one can choose the optimal type and method of rehabilitation in each case.

Analyzing a specific patient (client), we see a number of problems, and the task is to consistently assess their severity and urgency. Problem-oriented approach does not change the number of problems, but outlines a constructive way of work, greatly simplifies and optimizes tasks for specialists, as attempts to solve a large number of problems in a short period of rehabilitation at the same time usually turn out to be ineffective.

While preparing the physical therapy program, it is mandatory to set a specific goal of the general plan of

interventions, taking into account the peculiarities of person's condition at the time of intervention. When choosing the type of intervention, it is necessary to focus on evidence-based medicine data about effectiveness of certain methods to achieve the desired result.

Providing rehabilitation care to patients has a number of specific features: staging, continuity, consistency, starting as early as possible, individuality, social orientation, active participation of the patient and his family in the rehabilitation process, multidisciplinary approach.

To draw up a specific plan of rehabilitation measures, the goals of the process should be as accurate as possible. They must be aimed at having following effects: restorative (in case of aim to save the working capability, positive prognosis), supportive (in case of reduction or complete loss of working ability, adaptation to the restructuring of functioning in organs and systems) and palliative (for creation of comfortable conditions for the patient's existence in the process of progression and generalization of the disease).

### AIM

With the above, the aim of the work was to reveal the peculiarities of implementation of a multidisciplinary approach in a system of physical therapy.

To achieve it, the following purposes were determined:

1. to analyze the essence of the multidisciplinary approach in a system of physical therapy and particularities in forming a multidisciplinary team (MDT).
2. to describe using the multidisciplinary approach in a system of physical therapy in different groups of patients.

## MATERIALS AND METHODS

Theoretical analysis and systematization of data of scientific-methodical literature, data of Internet network.

## REVIEW AND DISCUSSION

There are many approaches to rehabilitation both in Ukraine and abroad. In Ukraine, medical rehabilitation has been actively developed and gained immense popularity in many areas of practical health care over past decade. But the problem of accessibility, timeliness and quality of complex rehabilitation remains relevant.

For example, when prescribing rehabilitation measures, native specialists often limit it to recommendations on how to recover after discharge from the hospital. This situation can still be observed in most native clinics and hospitals. This problem is quite clear, because rehabilitation is a costly event that requires participation of many specialists, equipment, comfortable places of staying and a long time for implementation of the rehabilitation program. Many governmental institutions are unable to provide these conditions. However, recently, a sufficient number of public and private rehabilitation centers, where experienced and highly qualified specialists work, have created the multidisciplinary teams for city hospitals. At the same time, multidisciplinary rehabilitation is still poorly implemented in medical institutions and rehabilitation centers.

Restoration of lost functions after injuries and diseases, based on the experience of European clinical neuropsychologists, today has been developing better abroad than in Ukraine. In the UK, the rehabilitation process relies on a biopsychosocial, holistic approach, characterized by combination of individual and group treatment, a combination of work to restore cognitive functions and psychotherapeutic effects. The main parts of this approach include therapeutic environment, general understanding of goals and close contact inside the interdisciplinary team, purposeful activities and actions important to the patient himself, studying of compensatory strategies and retraining practical skills, working with families and caretakers [1].

The multidisciplinary approach in rehabilitation is not new for domestic experience. It was first mentioned by V. Bekhterev, when creating the Psychoneurological Institute in St. Petersburg. His thesis on the need of multidisciplinary study of neuro-mental system in healthy and sick people, developed and presented in the early twentieth century, has only recently become universally recognized by world scientific community. The need in multidisciplinary approach was justified by V. Bekhterev on the basis that task of studying the neuro-mental sphere in person is so huge that it can be adequately solved only with a large complex of human sciences, such as psychiatry, neurology, neurosurgery, neurophysiology,

psychohygiene, psychoprophylaxis. At the same time, what he meant not a mechanical association of different disciplines that study certain aspects of human behavior, but their integrative synthesis, which allows a holistic, comprehensive study in healthy and sick person at any stage [2].

Modern development of physical rehabilitation is aimed at creation of multidisciplinary rehabilitation centers with inpatient and clinic departments, completed with following profiles: cardiology, neurology, oncological pathology, traumatology, perinatology, etc. Rehabilitation should be adapted to the constantly changing structure of diseases, as well as technical progress and changes in social structures (flexibility), manageability, indications that may change in a process.

A multidisciplinary team of specialists is a group of specialists from different spheres, united by common goals. It is characterized by coordinated goals and clear purposes, certain functions, distribution of functions and responsibilities. The main principle is a synergy.

The multidisciplinary team is characterized by the following features:

- common goal;
- distribution of responsibilities and tasks;
- communication, awareness;
- mutual support;
- reaching consensus;
- social partnership;
- compulsory general combined training;
- analysis of activities.

The multidisciplinary rehabilitation team includes: a doctor, a physical therapist, an ergotherapist, a psychologist, a correctional teacher, a social worker, a patient, members of his family or caretakers. Proper organization of quality care can be much more important than the absolute time of therapy [3].

Patients of inpatient and outpatient departments should have access to the following functional units:

- kinesiotherapy department (alone or in combination with physiotherapy department) with a physical training room, preferably with rooms for bio-management and ergotherapy (household rehabilitation);
- physiotherapeutic department with offices for therapeutic massage, electrostimulation and acupuncture;
- office of psychologist and correctional teacher;
- functional diagnostics office [4].

Team members need to develop a comprehensive individual rehabilitation plan, taking into account the severity of the disease, needs and goals of the patient. This plan should be regularly updated on the his condition, correction of the rehabilitation goal and measures used [4].

The development of the rehabilitation plan should be based on the assessment of functional dysfunctions made with standardized, valid assessment scales and meet the needs and level of patient tolerance to physical exertion. Each patient with mobility limiting should be examined by a specialist to determine the most suitable and safe release methods [4].

Members of the multidisciplinary team should communicate with patient, his relatives or caretaker regularly, to involve them in the process of treatment and rehabilitation, set the aims and plan discharge together. Caretakers of the patient and staff should be trained to use appropriate methods of release and movement techniques individually for each patient. The rehabilitation process has to be built in a way to promote constant using of skills, obtained during rehabilitation, or during patient's daily activities [4].

Thus, the rehabilitation process is aimed at returning patient to independent functioning, while he/she is considered as an active participant and partner of this process. Implementation of the rehabilitation program is defined as a comprehensive task that requires participation of a team of specialists, where everyone has a number of specific and interchangeable functions. For example, any of the specialists in the multidisciplinary team should be responsible for the patient. At the same time, building a rehabilitation program, choosing strategies and means are subject of the commonly developed aim, which leads to solving of practical tasks for patient's social inclusion [4].

Among many nosological trends, physical therapy was and remains particularly in demand after strokes, cerebral palsy, dystrophic lesions of the spine, cancerous diseases.

The features of the multidisciplinary approach of the above-mentioned nosologies will be revealed in detail, basing on the the client-oriented approach.

#### MULTIDISCIPLINARY APPROACH IN POST-STROKE REHABILITATION

Lack of timely and adequate restorative treatment in patients after stroke leads to irreversible anatomical and functional changes, as well as social and household disadaptation of patient. The purpose of rehabilitation process is to return patient to everyday activities and working process, to create optimal conditions for his participation in public life. During rehabilitation it is important to keep in mind the idea of organization of physiological and pathological movements, formation of compensatory processes of damaged structures and functions, functional systems of the body.

Compliance with the multidisciplinary principle in rehabilitation after stroke is one of the conditions for effective recovery with top-priority. To implement this principle, it is necessary to have multidisciplinary teams in departments, to treat patients after stroke on inpatient, outpatient and domestic rehabilitation level. Those specialists function as a single team with clear coordination of actions, thereby, providing a purposeful approach to conduct rehabilitation activities among patients who have suffered a stroke [5].

The main activities of MDT are examination of patient by all member specialists, assessment of his state and degree of dysfunctions with further filling of special documents, common setting of treatment goals, creating an adequate environment for the patient depending on his needs, discussion of the peculiarities of patient's management, distribution of the terms of discharge, including timely planning, determination of the conditions for further treatment to achieve maximum independence in everyday life (rehabilitation in inpatient,

outpatient, domestic, sanatorium conditions), assessment the ability of relatives and caretakers to learn the techniques of care and assistance, drawing up plans for the rational management with the patient and his relatives [6].

To ensure coordination and consistency of actions of all MDT members, it is necessary to hold meetings to develop a strategy and tactics of treatment. The tasks of the MDT meeting are acquaintance of all members with patient, identification of patient's problems, setting a real treatment goals and coordination of appropriate actions to achieve them, notification to team members about positive or negative changes in patient's condition, as well as drawing up an extract plan.

The functions of the MDT doctor include: identifying the main medical problems of the patient and the goals of rehabilitation, diagnosing and treating of comorbidities, introducing modern methods of rehabilitation in team activities, coordinating the team work [7].

The functions of the physical therapist and methodist of therapeutic physical training in MDT are: detailed assessment of the severity of patient's motor and sensitive disorders; restoration of motor functions (ability to turn, move to a sitting and standing position, keep balance while sitting and standing, walking, grab and transport objects); working with patients in order to reduce manifestations of diseases of the chest area; advising nurses and other staff on correct positioning of the patient, training in movement, proper handling of the affected limbs in order to avoid pain, prevention of shoulder pain and management of patients with pain; advising on the use of walking tools; assessment of swallowing function to select proper position for patient's feeding, as well as participation in assessment of patient's daily activities [4].

The functions of the MDT ergotherapist include: assessing the patient's condition in order to identify how one or other disorder affect his daily activities self-service and leisure activities; finding out patient's risk of stroke and assessing everyday his common domestic conditions; setting the main priorities of the restorative process in patients; assessing the function of visuospatial perception; training to restore daily activity in patient; promoting patient's adjustment to everyday activities and supplemental subjects (selection of rocking chair, seat height, table, household appliances, kitchen tools and cutlery, etc.); using of auxiliary devices to improve patient's functionality [8].

Correction teacher of the MDT assesses the safety of patient's swallowing; conducts training of nurses, patient and his relatives to get skills that will overcome swallowing disorders and avoid aspiration; provides selection and modification of the diet; assesses problems of communication in patient; conducts classes on the recovery of speech disorders; teaches patient and caretakers on methods that allow patient to communicate, using oral or written language, as well as alternative methods of communication [8].

It is also advisable to include a psychologist, neuropsychologist, manual therapist, reflexotherapist, orthopedic pedotherapist, assistant of middle grade medical staff and assistant methodist of exercise therapy, nutritionist, leisure coordinator and social worker to the MDT.

## MULTIDISCIPLINARY APPROACH IN REHABILITATION OF CHILDREN WITH CEREBRAL PALSY

Analysis of the latest data indicates the need to revise usual set of techniques and methods of physical rehabilitation, approaches in drawing up plans of interventions and evaluating effectiveness of rehabilitation in children with cerebral palsy [9].

Modern rehabilitation model provides a mandatory assessment of the impairment severity in child's motor functions by the GMFCS (Gross Motor Function Classification System) scale. Considering the age, assessment of the condition, the index by GMFCS classification and rehabilitation potential of the child, one can choose the optimal type and method of rehabilitation in each particular case [10].

Many methods of rehabilitation, traditionally used in the restorative treatment of children with pathological changes in muscle tone (primarily of the spastic type), these days receive scientific justification from the point of neuronal plasticity. However, scientific knowledge about the reserves and possibilities of the nervous system is supplemented every day, which requires constant revision, reevaluation and improvement of existing and re-introduced methods of rehabilitation [11].

In order to maximize the implementation of modern neurorehabilitation methods, it is necessary to solve problems that interfere with formation of a new, functionally beneficial motor stereotype. There is a serious problem, that interferes with development of motor functions in cerebral palsy, namely, spasticity. The existing increasing in muscle tone gradually leads to limitation of functionality, formation of motor deficiency, decreasing of movement skills; complicates self-service; promotes appearance of pathological states, formation of contractures, subluxations and dislocations of the joints. In fact, spasticity can lead to a whole complex of motor disorders, and in some cases - to the total immobilization of the patient [6].

In addition to spasticity, a critical part in the formation of pathological motor stereotype in cerebral palsy are played by a dysfunction of reciprocal inhibition, appearance of pathological synergies and synkinesia, increasing of reflex excitability (enhanced startle reflex) and presence of pathological tonic reflexes (tonic labyrinthine, symmetrical tonic neck, assymetric tonic neck types), the effect of which appears the most during body position changing [5].

The optimal is a set of methods, which takes into account all the above aspects of motor disorders in children with cerebral palsy.

Physical therapy classes are conducted with setting a specific goal of the general plan of interventions, keeping in mind the current condition of the child. When choosing the type of intervention, it is necessary to focus on evidence-based medicine data on the effectiveness of certain methods to achieve the desired result [12].

Rehabilitation intervention also includes teaching the family and child how to function optimally in specific conditions and environment relevant to them. Classes with this approach can only be individual. Group classes serve as an application that helps the child to interact in a social environment.

Rehabilitation measures are divided into two types:

1. Activities aimed at improving the quality of movement performance, expanding motor potential, mastering new skills.
2. Measures aimed at preventing secondary orthopedic complications [13].

When drawing up a program for helping a child with cerebral palsy, its ability to move, keeping posture, participate in daily activities, and ability to communicate are taken into account.

Thus, methods of physical therapy can increase the effectiveness of rehabilitation measures. The consistent use of these methods of physical therapy, which take into account the features of motor and proprioceptive disorders of each child, in combination with correct work with parents, allows to realize the potential motor capabilities of each patient. A multidisciplinary approach in the rehabilitation of children with cerebral palsy, characterized by an early onset, a balanced combination of methods of physical rehabilitation with medication, physiotherapy, psychological and pedagogical support, helps to adapt the child to conditions of the society as much as possible.

## MULTIDISCIPLINARY APPROACH IN REHABILITATION OF CANCER PATIENTS

Today, medicine has reached a high level in diagnostics and treatment of patients with various forms of cancer, which allowed to increase life expectancy and achieve five-year survival in about 70% of cancer patients [14]. Despite this, the results obtained can not be considered satisfactory, since the success of the diagnostics and treatment is determined not only by the number of lives saved, but also by the number of patients who were able to feel like members of society after treatment, which is more relevant [15].

The main methods of treatment in cancer patients are aggressive surgical intervention, radiation, drug and hormone replacement therapy, which are widely used in oncological practice and are often accompanied by serious functional disorders of various systems and processes of the body, decreasing in performance, changings in social status and quality of life [11]. In this way, the ultimate goal of the therapeutic process in oncology should be considered not only as the clinical recovery in patient, but also his or her return to the usual lifestyle [16].

Comprehensive multidisciplinary rehabilitation care for patients, regardless of the nosological form and localization of the tumor, should include several stages: preparatory (development of an individual and the most effective plan for diagnostics and treatment, minimization of the risk of complications and tumor relapse), therapeutic (conducting organ-saving and reconstructive-restorative operations), early recovery (development of comprehensive rehabilitation programs aimed at prevention and treatment of general and local postoperative complications, early radiation reactions, side effects of chemotherapy) and late recovery stage (self-rehabilitation, social adaptation and vocational rehabilitation) [17].



Medical rehabilitation in patients should be carried out by a group of specialists: oncologist, endocrinologist, sexopathologist, psychotherapist, physical therapist, ergotherapist, functional diagnostician, social worker. All mentioned implies a multidisciplinary character.

In recent years, many foreign publications devoted to the rehabilitation of patients often encounter the concept of "prehabilitation", which is the process of patient's undergoing rehabilitation procedures in the period between the moment of diagnostication and beginning of treatment [17]. It is considered as a stage preceding medical rehabilitation, which allows to provide timely psychological assistance to the patient already from the moment of diagnostication. This is due to the fact that starting the moment of diagnostication of disease or suspicion on it in cancer patients, so-called reactive states often arise; they require psychorehabilitation measures [18]. Also, at the stage of prehabilitation it is possible to inform early specialized rehabilitation centers, offices of oncologists and rehabilitation specialists that there is a new cancer patient who will need medical rehabilitation, which will help to optimize their work and achieve high results at all stages of treatment and rehabilitation of this patient.

The duration of therapy of various malignant neoplasms is often long-term, from several months to years. As a result of a comprehensive course of treatment, all cancer patients need systematic observation and counteraction to recurrent measures [9].

An important point during medical rehabilitation measures is diagnostical screening, which is carried out at all stages of the rehabilitation process and includes laboratory (cancer markers) and instrumental diagnostics (ultrasound) methods, computer tomography (CT) and magnetic resonance imaging (MRI), positron emission tomography (PET), necessary for timely detection of complications, relapses and metastases after treatment, as well as for prognostic assessment of the tumor process [19].

Thus, on the basis of rehabilitation centers and institutions of sanatorium profile, it is necessary to form laboratory and diagnostic offices for systematic monitoring of health in cancer patients throughout the recovery period.

Currently, in the practice of medical rehabilitation in cancer patients around the world, various modern rehabilitation measures are actively used; they include physiotherapy, spa treatment, psychotherapy, dietotherapy, herbal medicine, immunotherapy.

#### MULTIDISCIPLINARY APPROACH IN THE SYSTEM OF REHABILITATION IN PATIENTS WITH DYSTROPHIC LESIONS OF THE SPINE

Dystrophic lesions of the spine are the most common chronic human injuries. Pronounced clinical manifestations of neurological disorders are observed during active work life period (age of 25-55 years) and represent one of the most frequent causes of temporary disability and valetudinarianism [20].

Even during remission, many patients have a feeling of discomfort when moving and at rest, which often decreases

their quality of life. This inevitably affects the productivity of mental and physical work.

Polymorphic therapeutic methods of treatment of this disease are often not quite effective and require further restoration of the functions of certain organs and systems [21]. Neurosurgical correction of lumbosacral discogenic pain syndrome in most cases leads to objective improvement of the condition. However, the pain syndrome does not disappear immediately and completely, in some cases deterioration in health conditions and quality of life of patients take place. As the result, they suffer from further decreasing of their performance, which causes the need for intensive rehabilitation, taking into account clinical manifestations and individual personal characteristics. This is a part of a complex multidisciplinary system of rehabilitation effect on the body, including all aspects of rehabilitation: psychological, medical, physical, professional, social, economic [16].

Among the methods of medical rehabilitation, the emphasis is on kinesiotherapy in the gym and hydrokinesiotherapy. Physical exercises are done in the position of gravitational discharge: while lying on the back, on the abdomen, on the side, in the knee-brush position. Principles of kinesiotherapy include: stabilization of the vertebral and motor segments, normalization of muscle tone (relaxation of spasmed muscles, stimulation of the relaxed ones), "construction" of the muscle corset, formation of physiological posture, creation and consolidation of new extralocomotor skills, formation of adequate dynamic and static stereotype, normalization of limbs' joints motor functions, improvement of coordination movements.

Patients should receive psychological rehabilitation in order to reduce the level of stress, correct the internal picture of the disease, eliminate anxious or depressive components. Teaching in patients on methods of therapeutic gymnastics and formation of their motivation on an independent daily repeating of exercise complexes should be carried out as well.

Thus, a multidisciplinary approach to medical rehabilitation in patients with dystrophic lesions of the spine contributes to the normalization of their physical, emotional and general state, which improves social activity and functioning, and, as a result, improves the quality of life.

### CONCLUSIONS

1. Today, it is necessary not only to actively introduce existing methods of medical rehabilitation into the practice of physical therapists, but also to create new and more effective rehabilitation programs that require an individual approach to each patient, to work on creation of institutions and rehabilitation centers that would include experienced rehabilitation specialists (multidisciplinary team). This will allow to implement rehabilitation intervention with maximum efficiency.
2. The most common groups of patients seeking help from a physical therapist are patients of the neurological profile, as well as patients with disorders of the musculoskeletal system. Summarizing the data presented, it should be

noted that, fortunately, physical therapy, as an important component of medical rehabilitation, is recently characterized by improvement of its means and methods. An important aspect in modern physical therapy is development of an individual program of rehabilitation intervention, the application of principles of gradual increasing of physical activity, which are systematical and complex.

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Info

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