



## INTEGRATED REHABILITATION OF CHILDREN WITH CHILDREN'S CEREBRAL PARALYSIS

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### ABSTRACT

The goal of rehabilitation of children with a diagnosis of cerebral palsy is to provide the child with a chance to start living an active life, in accordance with his individual abilities. Comprehensive rehabilitation is aimed not only at compensating and restoring impaired motor functions and systems of a sick child, but also at developing self-care skills and performing social functions. In comprehensive rehabilitation - psychological, pedagogical, social, domestic and medical - are carried out in parallel.

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## INTRODUCTION

When choosing an individual rehabilitation program, it is necessary to remember that the main goal of the rehabilitation treatment of a child with cerebral palsy is his adequate social adaptation, which, in addition to the motor function, requires the presence of communication skills, integration with peers, education and profession [1]. Therefore, among rehabilitation measures in a patient with cerebral palsy, methods of social and pedagogical rehabilitation must be present [2,3]:

- Occupational therapy - allows you to develop the skills necessary for everyday life (independent dressing, the implementation of hygiene procedures, etc.) [4];
- Logotherapy - helps to solve problems with swallowing and to cope with speech problems [4];
- Ergotherapy - selection of technical means of rehabilitation (wheelchairs, walkers, canes);
- art therapy and rehabilitation through sports - contribute to the formation of motivation for treatment and social integration [4] (Prikhodko O.G. 2007).

Conducted pedagogy (Petio method) - is based mainly on the educational model of intervention and combines pedagogical and rehabilitation goals in one program. This concept is aimed at helping children with motor impairments to find "ortho functions", that is, the ability to participate and function in society, despite their motor deficits due to neuronal plasticity and localization of central nervous system functions [5]. During classes, rhythm and songs are widely used in a technique called "rhythmic intention", that is, verbal rhythmic instructions that are given during a series of tasks. With the help of rhythm, songs and poems, a background rhythm of motor activity is set, which helps to educate and motivate the child, and also helps to draw attention to the movement that the patient is currently performing [6].

Methods of animal therapy - Hippotherapy, canistherapy, dolphin therapy. The method of involving animals in the rehabilitation process of children with cerebral palsy is based on the principle of a combination of kinesiotherapy and positive emotional support [7]. All these methods

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and medical rehabilitation together allow children to socially adapt in the social environment.

To date, the Republican Center for the Social Adaptation of Children (RCSACh) exists and is successfully developing a system of social and pedagogical rehabilitation of children with disorders of the musculoskeletal system, in which the use of an integrated approach is a priority. Rehabilitation assistance at RCSACh has the following features:

- it is carried out continuously (repeated or continuous courses, parents are taught methods of rehabilitation at home, recommendations are given for the outpatient phase of treatment);
- it is comprehensive in nature (a team of specialists works with each child, which includes: a

neurologist, pediatrician, neuropsychiatrist, rehabilitologist, speech therapist, pedagogue-defectologist, sign teacher, instructor of exercise therapy and the pool, as well as the child's parents).

An important condition is the coordination of the actions of specialists. Each specialist maintains close contact with colleagues, includes in his tasks materials recommended by other specialists to consolidate the results of their work;

- an individual rehabilitation program is drawn up for each child;
- the family plays a major role in the rehabilitation process [8].

The medical unit is represented by physical therapy, massage, hydrokinesitherapy, psychotherapy (Table-1).

**Table 1. Comprehensive rehabilitation includes the following areas:**

Title	Characteristic
Ergotherapy	This is a rehabilitation section that studies the means and methods of restoring the motor function of the upper limbs using a variety of game tasks and simulators. We can say that this is a special gymnastics that trains fine motor skills of the hands and coordination system [9].
Joint gymnastics	This is a set of specific movements, exercises that promote the development of muscles and joints. These exercises elasticize tendons and muscles. Such gymnastics does not provide for heavy loads, the main effect is achieved due to the systematic nature of classes..
Adele	"Adele" - a medical load-bearing suit. This is a modern effective means of rehabilitation for patients with motor impairment as a result of cerebral palsy, traumatic brain injuries. As a result, joint mobility, muscle tone, fine motor skills, coordination are improved..
Hydro rehabilitation (hydromassage)	Hydromassage is a physiotherapeutic procedure combining massage, exercise therapy, and aromatherapy, and color therapy, and inhalation, and the game.
Phototherapy (phototherapy)	With phototherapy, metabolic processes in the body improve, and thereby the restoration of damaged structures is faster..
Probe massage	This is a massage performed by a speech therapist, acting on the muscles of the face and tongue with the help of special exercises and probes. This allows you to correct the incorrect pronunciation of sounds..
Sensory room	A specially equipped room where a child, accompanied by an adult, while in a safe and comfortable environment, explores the surrounding space, experiments with the properties of objects and the world, performs active exercises or has the opportunity to relax and restore internal mental balance.
Fairy tale therapy	Through a fairy tale, the psychologist helps to evaluate the problem and find a way out of it. Thanks to fairy tales, one can get rid of obsessive fears, resolve a dispute, understand what good and evil are, and much more. The fairy tale therapy technique helps to formulate the correct life values in a child, teach him to think and reason, make decisions independently. Fairytale therapy is effective as a means of developing figurative, emotional speech [10].
Montessori	The method is intended to stimulate the child to self-development, placing him in a prepared environment that has a clear logic of construction and is consistent with the psychological needs of the child.

Sand therapy	Sand therapy makes it easy and easy for a child to reveal his inner world, to learn about his fears, experiences, discover new creative abilities, and develop tactile sensations. This is a way of communicating with the world and oneself, translating it at a symbolic level.
Music therapy	A method of psychotherapy that uses music as a remedy. The basis of this method is the beneficial effect of music on the psychological, emotional state of a person. In children's practice, music therapy is an effective means of identifying the child's psychological problems and correcting them..
Isotherapy	Isotherapy is one of the areas of art therapy. Fine art treatment is the most popular and affordable method of self-knowledge. [11]. On paper or canvas you can express your thoughts, fears, hopes - that which is hidden deep inside a person. Isotherapy helps to get rid of negative emotions, relieves nervous tension. [12]. A variety of materials are used for drawing: paints, pencils, colored paper, plasticine, etc.
Robotic mechanotherapy simulator "Lokomat"	Lokomat is a robotic orthopedic simulator for the restoration of walking skills lost in the process of illness or injury, used in combination with a treadmill. A unique children's rehabilitation complex with expanded feedback is an innovative product that allows you to restore and re-form walking skills in children aged 3 to 12 years and growing from 86 to 136 cm. The combination of locomotor therapy with motivational training and objective assessment of the patient's condition through extended biological feedback tools and virtual reality increases the effectiveness of therapy and allows to achieve significant results in a short period of time [13].
Aquamembrane (Aquarelax)	bath The patient receives almost all the healing effects of warm water massage: - pain disappears due to relieving muscle cramps; - the blood supply to the massaged tissues improves; - metabolism is activated, health is improved, calorie consumption is increased, the patient is actively losing weight; - slags and toxins are removed, edema leaves the tissues, venous and lymphatic outflows are restored; the work of internal organs improves due to the effect of water jets on biologically active points of the body; - stress is relieved, fatigue, insomnia and depression go away, sleep, mood and overall well-being improve.

In RCSACh in 2018 with a diagnosis of cerebral palsy, we observed 117 children, which were divided into 4 groups:

the first group - the child walks on his own (a mild form of motor impairment, there are some limitations in fine motor skills when performing motor activity).

the second group - the child walks with support (the middle form of motor impairment, the child serves himself, but with difficulty).

the third group - the child moves with the help of technical means, walks with walkers (severe form of motor impairment, the child serves himself partially with great difficulty).

the fourth group - the child cannot walk, is constantly in a wheelchair (gross form of motor impairment, the child does not serve himself).

**Table 2. Group of motor activity during the treatment (number of children):**

No. groups	Amount of children	
1	16	13,6%
2	15	12,8%
3	55	47,1%
4	31	26,5%
Total	117 children	100%

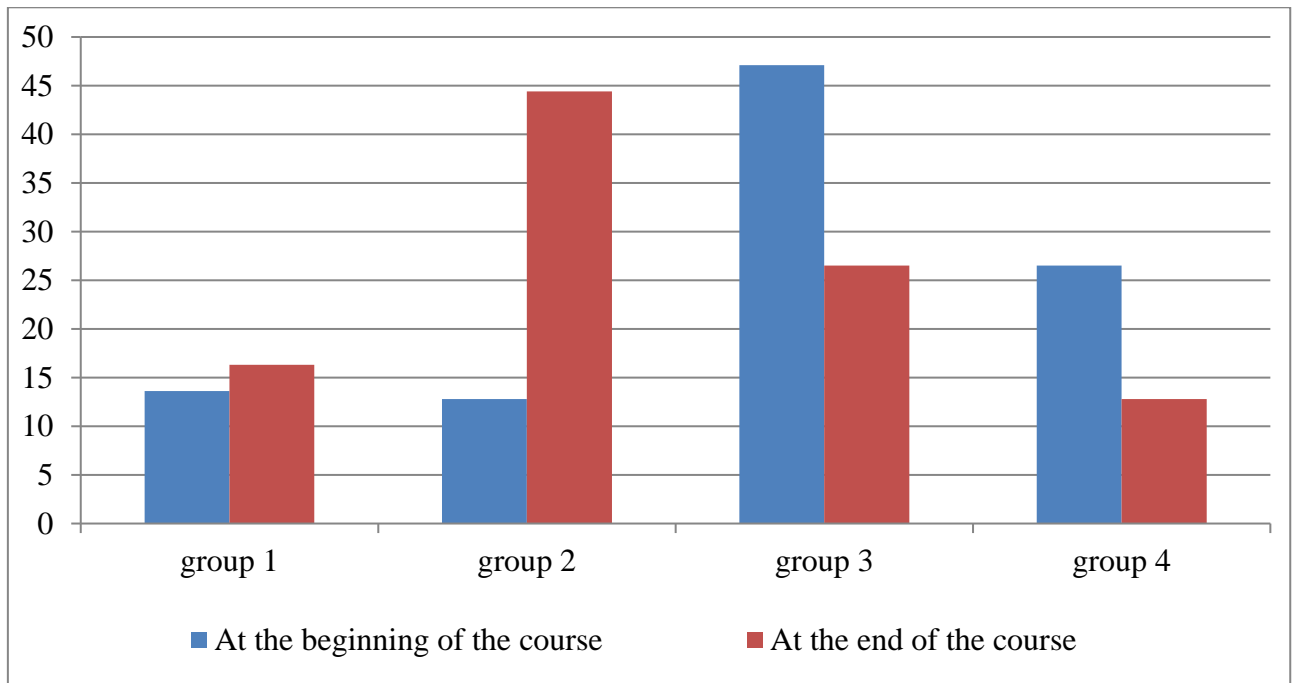
Each child in RCSAD received comprehensive rehabilitation according to an individual program.

For example: Patient Yu.A., born in 2013, with a diagnosis of cerebral palsy, spastic diplegia (G80.1), ZPMR, dysarthria. According to my mother: I didn't go on my own, didn't eat, I understood the addressed speech, but dysarthria was noted. An individual plan rehabilitation was prepared for the patient at the RCSACh, which included physical therapy, hydrokinesitherapy, classes on Lokomat, massage, classes with a pathologist, pedagogues-psychologist. After a month-long rehabilitation course, the patient had new skills: he began to eat on his own, appeared verticalization and several independent steps, positive dynamics were noted in the speech, the child became more active.

Patient A.Sh., born in 2012, with a diagnosis of cerebral palsy. Spastic tetraparesis (G82.1).

Secondary microcephaly. Symptomatic epilepsy. Deep ZMPR. ZPRR. ". According to the mother: the child could not do anything on his own, the vocabulary was 5-6 words, partially understood the converted speech. An individual plan was drawn up for the patient at the RCSACh, which included hydrokinesitherapy, physical therapy, aquarelax, Lokomat, massage, fairy-tale therapy, classes with a defectologist, psychologist, and an educator. After a 1-month rehabilitation course in the patient, we observed: improved muscle tone, attempts to verticalize, an increase in the number of words in the vocabulary, normalization of sleep, the child became more active, contact.

The results after a full course of rehabilitation were as follows:



It can be seen from the table and diagram that children who belonged to group 4 moved to group 3, from group 3 to group 2, from group 2 to group 1. And children from group 1 improved their motor functions.

### Conclusion

If a complex of the indicated methods and services is used in institutions for the rehabilitation of children with special needs, positive results in restoring the motor and mental capabilities of children will be achieved in a relatively short time. Along with this, we can help children with motor disabilities find their place in society, in shaping them as individuals, and most importantly, improve the quality of life of children and their parents.

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