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Effect of ergotherapy on the level of self-care of children with cerebral palsy

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Purpose: *form a block of ergotherapy for children with cerebral palsy, supplement it with a program of physical rehabilitation and determine its utility in increasing the level of self-service.*

Material & Methods: *analysis and generalization of foreign and domestic special scientific and methodological literature; pediatric assessment of activity limitations (PEDI). The contingent of subjects – 106 children 4–6 years old, 54 of them with spastic hemiplegia and 52 with spastic diplegia. Methods of physical therapy were included in the exercises with control groups. The main groups received a part of the modified standard procedures, and the key difference was the use in the main groups of ergotherapy, namely targeted therapy.*

Results: *purpose of ergotherapeutic interventions was to achieve the maximum possible activity of the child. Purposeful therapy required a priority analysis of the task, the environment of performance and the capabilities of the child. Procedures for targeted therapy were built from occupations that included a specific task algorithm. According to the final results, the main groups had significantly better results in a number of items in the self-service section of PEDI.*

Conclusions: *use of targeted therapy in conjunction with physical therapy has advantages in improving self-service level, compared with the standard protocol of physical therapy.*

Keywords: *ergotherapy, recovery, functioning, activity, participation, physical activity, exercise.*

Introduction

Physical rehabilitation of the children's contingent is an important social problem [1; 2]. One aspect of rehabilitation in pediatrics is infantile cerebral palsy (cerebral palsy). Rehabilitation approaches among children with cerebral palsy are complex and comprehensive. Rehabilitation programs are complemented by medical and surgical procedures, physical therapy, ergotherapy, language therapy, recreational activities, school adaptation and training, psychosocial support, the use of orthoses and other adaptive equipment [9; 10].

In modern conditions, the process of formation of executive skills and physical therapy and ergotherapy in children with infantile cerebral palsy requires the mastery of foreign experience [7], the creation of new guidelines for social rehabilitation and the application of an interdisciplinary approach [7; 5, 12; 11], taking into account the polymorphism of clinical manifestations and the complexity of the pathogenesis of cerebral palsy [9; 13; 3], as well as the availability of creative approach from specialists [5].

Relationship of research with scientific programs, plans, themes. The work was carried out in accordance with the "Summary plan of research in the field of physical culture and sports for 2011–2015". On topic 4.4 "Improving the organizational and methodological foundations of programming the process of physical rehabilitation for dysfunctional disorders in different systems of the human body" (state registration number 0111U001737) and the NUPCS research plan for 2016–2020 on the topic: 4.2. "Organizational and theoretical and methodological basis for physical rehabilitation of persons of different nosological, professional and age groups", number of state registration 0116U001609 for the period 01.16.2017 – 30.12.2017.

Purpose of the study was to form a block of ergotherapy for children with hemiplegic and diplegic forms of cerebral palsy, to supplement the program of physical rehabilitation and to determine its utility in increasing the level of self-service.

Material and Methods of the research

The materials were obtained during the research on the basis of the Kyiv city center for the rehabilitation of children with disabilities (main groups) and the Special Educational and Educational Complex "Dream" (Kyiv) (control groups). The contingent of subjects – 106 children 4–6 years old, 54 of them with spastic hemiplegia (HP) and 52 with spastic diplegia (DP). The main groups that were involved in the developed program included 28 children with DP (MG1) and 27 with HP (OG2). Differences between the main and control groups at the beginning of the course of therapy were not revealed. In order to assess the significance of the difference, in the presence of a normal distribution of the results of the studies, the Student's t-test (for independent or for dependent groups) was used, and for the indicators, the distribution was different from the normal one, using the Mann-Whitney U test (for independent groups) and the Wilson test (for dependent groups).

Children underwent a course of restorative treatment. The following procedures and techniques were included in the exercises with the control groups: bimanual training, unimunal training, therapeutic gymnastics, massage, games. The main groups received a part of the modified standard procedures: constraint-induced movement therapy (CIMT), bimanual training (bimanual intensive training), complex therapeutic gymnastics. The key difference was the use of ergotherapy in the main groups, namely goal-directed training (GDT), which required the transfer of mastered movements in the practice of daily life (Activities of Daily Living) and the instrumental ac-

tivity of everyday life (Instrumental Activities of Daily Living).

The duration of the course was 30 days, 22 of which were filled with Ergotherapy and physical therapy. The duration of therapy per day was the same in groups and was 6 hours.

Research methods: analysis of scientific literature, synthesis and generalization; Pediatric Evaluation of Disability Inventory (PEDI).

The main hypothesis: the use of targeted and modified therapy in accordance with modern provisions of techniques from the standard protocol can better improve the self-care of children with cerebral palsy.

Results of the research and their discussion

Aim of the ergotherapeutic measures was to achieve the maximum level of employment and independence in the occupations of its spheres. The program is constructed taking into account the analysis of published sources [4–6; 13]. The terms used in the work were translated and put into circulation by A. A. Mangushev.

Targeted therapy (or targeted functional therapy, targeted activity-based therapy), conducted with children, required priority analysis, task analysis, fulfillment and activity demands and child's opportunities. On the possibility of modification, then adapt the environment and adjust the structure of the task easier than the features and abilities of the child. Adaptation of the environment and tasks contributes to improving the efficiency of implementation and, in general, the rehabilitation process.

Classes of purposeful functional therapy were built on certain activities (activities), including a certain algorithm of tasks is a sequence of actions. This approach made it possible to form an effective program of the movement for the task, which, along with the quality requirements, determined the final result of the purposeful activity. Thus, a certain occupation must be productive, and the child must see the results of his work in a particular object, product, or job. Executive knowledge and skills training activity formed due to the formation of a good idea of the tasks, actions and their significance, working in a passive-active form (with the participation of the ergotherapist and later the parents) with a gradual transition to the active.

There was a demand that the child should gradually reach the certain ergotherapist and solve problems independently by performing an algorithm of actions. So, the role of the ergotherapist passed to the control of the process of performing operations and only then the result.

It was taken into consideration that variants of the ability to use the brush in a more preferable, rational manner are possible, and the brush function itself can undergo slight changes.

At the beginning of the course, skills were more easily formed, and later complicated ones: in particular, use a spoon and later with a fork; it is more difficult to wash than wash your hands; to undress easier than to dress. Moderate growth of requirements contributed to the formation of self-reliance and sustained interest.

During the training, attention was paid to: the child's attitude to action, the presence of interest; teach little by little; learning from the last elements – movement is performed with the help, and the last element itself; combination of game with discipline; variable of specialists to prevent attachment to certain circumstances or people.

On the peculiarities of purposeful training (GDT), it can be noted that they are similar in some characteristics to the methodology of SMART goals. The main characteristics of GDT: activity is associated with goals (the goals of children / families are realistic and possible), factors that limit (on the part of the child, the environment, the goal itself), attention to the characteristics of the result and the reasons for making appropriate corrections in the task or the environment.

That is, the child's desire to learn a particular activity or improve it was at the heart of the formation of the goal.

The purpose-oriented therapy program focuses on: 1-activity of daily life (self-care and personal hygiene) 2 instrumental activity of daily life (household help / work).

Since it was desirable that the training activity take place on the basis of actual necessity, the organization of the classes was planned taking into account the combination of all directions. For example, using the bath before and after eating, dressing up contaminated when eating or drawing clothes.

To create these aspects of the activity, special equipment and premises (or zones) were used: furniture, utensils and household implements; specially equipped rooms (kitchen, bathroom, toilet room, locker room) a corner of wildlife; comfortable workplaces, work samples, children's sets of materials and tools for creativity, natural material.

The assimilated movements during the physical therapy sessions were transferred to the practice of daily life activity and the instrumental activity of everyday life. For example, the capture of objects with the entire palm of your hand when working with a brush, glasses, comb, sometimes with spoons; contrasting the thumb to the rest when working with some types of faucets in the bathroom, clothespins, keys, tassels; messages of the ability to capture and turn the brush when opening the doors.

The task of ergotherapy in the activity of everyday life:

– to promote the formation of the skill of independent food intake with the aspect of using cutlery and table etiquette;

– to promote the formation of personal hygiene skills;

– contribute to the formation of dressing and undressing skills (mittens, skirt, trousers, tights, hat, shoes);

– to promote the formation of skills to use the toilet;

– to promote the formation of skills in using light switches, door locks and latches, and a telephone.

In the teaching of eating habits, spoons with special shapes and pens were used; tables and chairs of the appropriate size; stand for feet support elastic tubes, a cup with two handles, an ordinary cup for gradual increase in complexity. Thus, ways of capturing and holding containers, drinking from them were

formed. In addition, a connection was formed between eating and washing hands before and after, using a handkerchief.

For example, increasing the independence in eating can be due to the fact that the ergotherapist will no longer hold the child's brush with a spoon, but will hold his hand. To the child with cerebral palsy, the spoon rose always in front and was located along the midline of the body, and by no means from the side. After the entire trajectory with the spoon was performed several times with the ergotherapist, the following movements were performed without holding the child's hand at the end of the movement (the spoon almost at the lips). Thus, the child is easier to learn to complete the action.

On the features of improving self-intake of food in children with diplegic form, attention was paid to the position and balance of sitting. And in children with a hemiplegic form for the presence of activity and focus on one hand, caused an incorrect position and associative movements. If necessary, held by the shoulders, pressing the chest (to stimulate the correct position of the head). The help in overcoming the asymmetric character of the movements passed as the positioning of the free hand: put on the table or under it, across the stomach, the brush is rotated outwards.

The main thing in the training was the division of classes into small steps that were not higher than the child's ability and with which it was much easier to cope on their own. That is, the analysis of the task (taskan alysis). For example, the formation of the skill of individual hygiene began with the lightest elements – roll up (pidtyanuty) sleeves, moisten your hands, rub your hands. Subsequently, the opening and closing of the cranes, the use of soap and towels, washing, using the comb.

In order to better form the skills of using the toilet, the room was equipped with special handles that were attached to the side wall and helped to move to a sitting and standing position, a stable footrest and various removable toilet seats. It is important that the child can get toilet paper on his own, and the handle or the water wash button was adapted to the child's capabilities.

The skills of independent stripping were formed initially with clothes without buttons, lightnings and other fasteners (hat, t-shirt, sweater, gloves). Like other activities, dressing and undressing are complex, even one of the most difficult for children with cerebral palsy, because they require a balance, good visual-motor coordination, the ability to reach the object, brothers and release, fix the position of the hands, good fine motor skills.

In addition, in the process of forming skills to put on and take off clothes, if necessary, the child's concept of the sides and parts of clothing (front or back, top or bottom.

General rules for teaching a child the skills to dress and take off his clothes: selecting the optimal position to reduce spasticity and uncontrolled movements; try to maintain the symmetry of the position of the child at the beginning and in the process; the position of the child should be convenient for the specialist (height, slope of the surface) and safe for the child; maximum participation of the child in accessible movements.

To provide the correct position to the hands and the body in general when the sitting position is flexed (in the shoulder joints, the internal rotation, hands are pressed to the trunk, the legs are not bent sufficiently, the back is round), the following procedure was performed: take the child by the arms from the outside of the elbows and above them; raise and return the arms outward with one careful movement, pulling the child (towards the child) towards him - for straightening the back, raising the head, better bending of the legs and a more functional position of the hands. This allowed properly putting on the sleeve and forming the right skill.

If the child is unable to keep the balance sitting (on the floor or chair) and simultaneously perform manipulations with his hands while dressing / undressing, techniques were used to provide better stability in the form of supporting points of the hip joints, hips, knees or feet.

We used a way of self-maintaining balance when dressing / undressing with a chair. So, the child sat face to back with his feet lowered under the backrest on the pedestal (stand), and her hands alternately maintained a balance when training skills with clothes for the upper body.

With poor ability to maintain balance in the sitting position, there was also an option of dressing / undressing while lying down, sitting against a wall or in a corner. In particular, the lying on the side and the bridge for dressing the pants were used. The position sitting against the wall or in the corner was used when dressing socks, trousers, and shoes.

Manipulations with buttons, zippers, means of fixation shoes were trained on clothes of special dolls or ergotherapist, stands with buttons and fasteners. Initially, large buttons and other fasteners were used. It was mastered the use of comfortable in height hangers, cabinets. Improvement in the ability to plan the algorithm of actions in this activity occurred with the use of games.

The ergotherapist provides a sufficient level of explanations about the importance of self-service skills, ergonomic methods of problem solving, forms a presentation by own example (demonstration) and joint execution, creates situations of neatness formation, emotional-aesthetic sensitivity, and criteria for evaluating the result. That corresponds to the stages of development of everyday skills in such children: the formation of motivation (interest, needs, responsibilities) and value attitude to skills of self-service and self-realization; creation of a system of knowledge and ideas; transfer of theoretical knowledge to use in practice.

In general, as in solving problems of self-service, and other directions of ergotherapy, the ergotherapist had elements (show, push to action with his help, cheer, wait, praise for diligence), periodically repeated.

If the child has a desire to do everything himself by virtue of his abilities, the ergotherapist provided only the necessary assistance, and never performed the movements that had already been mastered instead of the child. Rehabilitants showed what exactly he should do, and if necessary help through the movements of his hands and body.

The task of ergotherapy on the instrumental activity of everyday life was aimed at mastering the skills and abilities that were necessary for the opportunity:

– participation in the maintained cleanliness of the classrooms;

– participation in the maintenance of order in toys, the arrangement of furniture (in particular, toy), the cleanliness of dishes;

– participation in the organization of planned activities and activities in accordance with the schedule (preparation of equipment and materials for classes, food intake, decomposition, washing plates, etc.);

– participation in the care of plants (watering, changing the location, transplanting) and animals (feeding, monitoring environmental conditions) in the nook of wildlife;

– participation in cooking, decomposition and washing products.

The program developed had a number of advantages in influencing the self-care of children in PEDI (Table). Thus, the children of the main groups were statistically different from the control groups by a large number of items, which was not noted at the first examination.

In particular, under the item "Consistency of food consumed", all four groups had significant positive changes ($p<0,01$). However, there were no statistical differences between MG1 and CG1, MG2 and CG2 ($p>0,05$), which indicates the same effectiveness of the programs that were used. Thus, the average value in MG1 increased by 0,46 to 2,6±0,62 points, in CG1 – by 0,58 to 2,9±0,69 points, in MG2 – by 0,41 to 3,1±0,75 points, in CG2 – by 0,28 to 3,2±0,72 points.

Analysis of the results of the item "Use of dishes for eating" noted the presence of significant changes in all groups ($p<0,01$). In addition, statistically significant differences were found between MG1 and CG1 ($p<0,05$), MG2 and CG2 ($p<0,01$). The dynamics of mean values among children with hemiplegia was as follows: in the MG1 group, the increase was 1,29 points, and the rate of 2,9±0,94 points in the group CG1 was 0,58 points and the index was 2,3±0,78 points. In the groups of children with diplegia, the mean values were as follows: MG2 3,3±0,67 points, CG2 2,7±0,69 points, and the increment was respectively 1,22 points and 0,56 points. Such dynamics showed a more positive effect of the developed program among children of the main groups on the ability to use a spoon, fork and knife.

The analysis of the changes based on the results of the item "Use of Drinking Capacities" noted the presence of significant changes among groups of children with both hemiplegia and diphtheria: MG1 ($p<0,01$), CG1 ($p <0.01$), MG2 ($p<0,01$), CG2 ($p<0,05$). The dynamics of mean values among children with hemiplegia was as follows: in the MG1 group, the increase was 0,93 points, and the score 3,5±0,92 in the group CG1 was 0,46 points and the index was 2,5±0,94 points. In the groups of children with diplegia, the mean values were as follows: MG2 – 3,7±0,86 points, CG2 – 3,0±0,82 points, and the increment, respectively, was 0,67 points and 0,32 points. Also statistically significant differences were found between MG1 and CG1 ($p<0,01$), MG2 and CG2 ($p<0,01$), which confirmed the statistically more positive effect of the developed program in the main groups of children on the ability to hold, raise a bottle or drink, pour liquid into a cup or glass.

At repeated estimation the received parameters for performance of a point of "cleaning of a teeth" has been established at a level 3,1±0,86 points among children of group MG1 and 2,4±0,86 points among children of group CG1. In the groups of children with diplegia, mean values were established and at the levels of 3,3±1,00 points and 2,7±0,79 points in MG2 and CG2, respectively. The increase in the indices of the mean values was: MG1 – 1,0 CG2 – 0,46 points; MG2 – 1,15 points; CG 2 – 0,52 points. Thus, the analysis of the dynamics of the results of the point "tooth cleaning" noted the presence of reliable changes in all groups ($p<0,01$), that testifies to the positive impact of both intervention programs on the features of forming skills to open the mouth for cleaning teeth, hold the toothbrush and prepare it, brush your teeth. However, at the time of reassessment, significant differences were found between MG1 and CG1 ($p<0,01$), MG2 and CG2 ($p<0,05$), which confirmed a statistically more positive effect of the developed program in the main groups of children compared to control.

Analysis of the results of the item "Hand hygiene" stated the presence of significant changes in all groups of children ($p<0,01$). In addition, statistically significant differences were found between MG1 and CG1 ($p<0,05$), MG2 and CG2 ($p<0,05$). The dynamics of mean values among children with hemiplegia was as follows: in the group MG1, the increase was 1,43 points, and the index 3,4±1,06 points in the group CG1, the increase was 0,69 points, and the index was 2,81±0,84 points. In the groups of children with diplegia, the mean values were as follows: MG2 – 3,6±0,74 points, CG2 – 3,1±0,78 points, and the gain in the groups was 1,11 points and 0,68 points, respectively. Such dynamics showed a more positive effect of the developed program among children of the main groups on the ability to hold hands, rubbing hands together, turning water on and off, using soap, washing thoroughly and wiping hands.

The carried out analysis of changes based on the results of the paragraph "Body and face washing" noted the presence of significant changes among groups of children with both hemiplegia and diplegia ($p<0,01$). The dynamics of mean values among children with hemiplegia was as follows: in the MG1 group, the increase was 1,46 points, and the score 2,4±1,16 points in the CG1 group was 0,65 points, and the index was 1,7±0,94 points. In the groups of children with diplegia, the mean values were as follows: MG2 – 2,4±1,12 points, CG2 – 1,7±1,10 points, and the increment was respectively 1,33 points and 0,60 points. Also statistically significant differences were found between MG1 and CG1 ($p<0,05$), MG2 and CG2 ($p<0,05$), which confirmed a statistically more positive effect of the developed program in the main groups of children on the ability to wash body parts, soap, sponge, wipe.

When reassessing, the results obtained for performing the item "Clothes that are worn over the head / fastened in front" were set at 2,9±1,04 points among the children of the MG1 group and 2,3±0,84 points among the children of the CG1 group. In groups of children with diplegia, mean values were established at 3,2±0,72 points and 2,7±0,74 points in MG2 and CG2, respectively. The increase in the indicators of average values was: MG1 – 1,18 points; CG1 – 0,54 points; MG2 – 1,15 points; CG2 – 0,64 points. Thus, the analysis of the dynamics of the results (Table) of this paragraph noted the presence of significant changes in all groups ($p<0,01$), which is indicated by the positive impact of both intervention programs on the formation characteristics, for example, the skills

of removing / putting on a shirt or sweater without fasteners / which is fastened in front. In addition, at the time of reassessment, significant differences were found between MG1 and CG1 (p<0,05), MG2 and CG2 (p<0,05), which confirmed a statistically more positive effect of the developed program in the main groups of children compared with control.

An analysis of the results of the "Fastener" clause revealed the presence of significant changes among groups of children with both hemiplegia and diphtheria (p<0,01). In addition, statistically significant differences were found between MG1 and CG1 (p<0,05), MG2 and CG2 (p<0,05). The dynamics of mean values among children with hemiplegia was as follows: in the MG1 group, the increase was 1,21 points, and the index itself was 2,8±1,04 points in the CG1 group, the increase was 0,58 points, and the index itself was 2,1±1,11 points. In the groups of children with diplegia, the mean values were as follows: MG2 – 3,6±1,12 points, CG2 – 3,06±0.89 points, and the gain in the groups was 1,89 points and 1,20 points, respectively. Such dynamics showed a more positive effect of the developed program among children of the main groups.

The analysis of changes based on the results of the item "Pants" found the presence of significant changes among the groups of children with both hemiplegia and diplegia: MG1 (p<0,01), CG1 (p<0,01), MG2 (p<0,01), CG2 (p<0,05). Among the children with hemiplegia, the dynamics of the mean values was as follows: in the MG1 group, the increase was 0,93 points, and the index 2,5±0,92 points in the CG1 group increased by 0,38 points and the index itself was 2,0±0,77 points. In the groups of children with diplegia, the mean values were as follows: MG2 – 2,5±1,19 points, CG2 – 1,8±93 points, and the increment was 1,15 points and 0,32 points, respectively. Also statistically significant differences were found between MG1 and CG1 (p<0,05), MG2 and CG2 (p<0,05), which confirmed a statistically more positive effect of the developed program in the main groups of children on the possibility of dressing/lifting, fastening/unfastening trousers.

Under the item "Footwear/Socks", all four groups had significant positive changes (p<0,01) in self-service options when removing/dressing socks and shoes, using velcro fasteners and laces. However, no statistical differences between MG1 and CG1, MG2 and CG2 were observed (p>0,05), which indicates equal effectiveness of the programs that were used. Thus, the mean value in MG1 increased by 1,07 to 2,1±0,92 points, in CG1 – by 0,65 to 1,9±0,71 points, in MG2 – by 0,70 to 1,9±0,85 points, in CG2 – by 0,56 to 1,7±0,98 points.

According to the item "Problems related to the toilet", all four groups of children had significant positive changes: MG1 (p<0,01), CG1 (p<0,05), MG2 (p<0,01), CG2 (p<0,05), which reflected an improvement in the autonomy and peculiarities of using the toilet. Note that there were no statistical differences between OG1 and CG1 for this item (p> 0,05), and differences were established between MG2 and CG2 (p<0,05). This indicates a similar effectiveness of programs among children with hemiplegia and better effectiveness of the developed program in children with diphtheria. Thus, the mean in MG1 increased by 0,57 points to 2,5±1,04 points, in CG1 – by 0,19 points to 2,3±0,96 points, in MG2 – by 0,70 to 2,9±1,13 points, in CG2 – by 0,16 to 2,2±0,76 points.

The analysis of the results of the total score for the self-service section noted the presence of all groups of children of significant positive changes for the course (p<0,01). Thus, both the standard and the developed program were generally effective in the self-service section. However, statistically significant differences were established between MG1 and CG1 (p<0,05), MG2 and CG2 (p<0,01). Such dynamics showed a more positive effect of the developed program. We note that the dynamics of the mean values among children with hemiplegia was as follows: in the MG1 group, the increase was 13,89 points, and the indicator 43,4±10.21 points in the CG1 group increased by 7,62 points, and the indicator itself was 37,6±9,23 points. In the groups of children with diplegia, the mean values were as follows: MGG2 46,7±9,32 points, CG2 40,7±7,42 points, and the gain in the groups was 13,26 points and 7,16 points, respectively.

Average indicators of the self-care section of PEDI children with hemiplegia and diplegia after a course of rehabilitation

Self-service section indicators	Me (25%; 75%)		p	Me (25%; 75%)		p
	MG1 (n=28)	CG1 (n=26)		MG2 (n=27)	CG2 (n=25)	
Consistency of food consumed	3 (2; 3)**	3 (2; 3)**	>0,05	3 (3; 4)**	3 (3; 4)**	>0,05
Use of dishes for food	3 (2; 4)**	2 (2; 3)**	<0,05	3 (3; 4)**	3 (2; 3)**	<0,01
Use of pots for drinking	3 (3; 4)**	3 (2; 3)**	<0,01	4 (3; 4)**	3 (2; 4)*	<0,01
Teeth cleaning	3 (2,25; 3,75)**	2 (2; 3)**	<0,01	3 (3; 4)**	3 (2,5; 3)**	<0,05
Hair combing	3 (2; 3)**	3 (2; 3)**	>0,05	3 (2; 3)**	3 (2; 3)**	>0,05
Care of the nose	3 (3; 4)**	3 (3; 4)**	>0,05	3 (3; 4)**	3 (3; 4)**	>0,05
Hand hygiene	4 (2; 4)**	3 (2; 3)**	<0,05	4 (3; 4)**	3 (2,5; 4)**	<0,05
Body and face washing	2 (1; 3)**	2 (1; 2)**	<0,05	2 (1; 3)**	1 (1; 2,5)**	<0,05
Clothes, dressed over the head/fastens front	3 (2; 4)**	2 (2; 3)**	<0,05	3 (3; 4)**	3 (2; 3)**	<0,05
Fasteners	3 (2; 3)**	2 (1; 3)**	<0,05	4 (3; 4)**	3 (2,5; 4)**	<0,05
Pants	2 (2; 3)**	2 (1; 3)**	<0,05	2 (2; 3)**	2 (1; 2,5)*	<0,05
Shoes / Socks	2 (1; 3)**	2 (1; 2)**	>0,05	2 (1; 3)**	2 (1; 3)**	>0,05
Tasks associated with the toilet	2,5 (2; 3)**	2 (1; 3) *	>0,05	3 (2; 3)**	2 (2; 3)*	<0,05
Control of bladder function	3 (3; 3,75)**	3 (3; 3)	>0,05	3 (3; 4)	3 (3; 3,5)	>0,05
Awareness of defecation	3,5 (3; 4)	4 (3; 4)	>0,05	4 (3; 4)	4 (3; 4)	>0,05
Total amount of the section	46 (35; 49)**	40 (27,8; 43,3) **	<0,05	46 (42; 53)**	39 (37; 49)**	<0,01

Remark. ** – difference between the indicator is statistically significant in comparison with the indicator at the admission level p<0,05; ** – p<0,01.*

Conclusions

One of the socially significant problems of physical rehabilitation in pediatrics is infantile cerebral palsy. The complex approach of rehabilitation measures is provided by a combination of physical therapy, speech therapy, adaptive learning, social support, the use of orthoses and surgical procedures, if necessary. Accordance with international practice ergotherapy helps to achieve the maximum level of functionality and independence in all aspects of life by people with disabilities through a set of activities and active rehabilitation technologies.

The ergotherapeutic interventions that were included in the rehabilitation program included targeted therapy. Classes of purposeful functional therapy were based on certain types of training activities, which were represented by a certain sequence of movements for the formation of an effective program of purposeful movement. Targeted therapy focuses on the formation of executive knowledge and skills in the activity of everyday life and the instrumental activity of everyday life. Given the wide variety of skills that are required in training activities, the rehabilitation program focused not only on the child's ability to manipulate objects, but also on the target tasks that a person performs daily.

Statistical analysis revealed that the use of targeted therapy, as a method of ergotherapy, combined with physical therapy, has advantages in improving the level of self-service of the Pediatric Evaluation of Disability Inventory in comparison with the standard protocol of physical therapy.

Prospects for further research in this area are the study of long-term results.

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References

1. Vitomskiy, V. (2015), «Assessing the impact of technology of the physical rehabilitation on functionality of the respiratory system of the children with functional single ventricle», *Slobozans`kij naukovo-sportivnij visnik*, No. 6(50), pp. 44-47. (in Ukr.)
2. Vitomskyi, V. (2015), "Physical rehabilitation of children with congenital heart disease: a review of foreign experience and achievements", *Theory and Methods of Physical Education and Sports*, No. 3. pp. 48-54. (in Ukr.)
3. Kuschenko, O., Vitomsky, V., Lazareva, O. & Vitomska, M. (2017), "Means of ergotherapy in increasing the level of functioning and independence of children with cerebral palsy", *Molodizh. nauk. visn. Skhidnoievrop. natsion. un-tu imeni Lesi Ukrainky*, Vol. 26, pp. 94-102. (in Ukr.)
4. Martinyuka, V.Y. (ed.) (2016), *Osnovi social'noï pediatriï. Navchal'no metodichnij posibnik* [Fundamentals of social pediatrics. Teaching methodological manual], Vol. 1, Kiev. (in Ukr.)
5. Romenska, T.G. (2016), "The peculiarities of social and living skills formation of preschoolers with typical development and children's cerebral palsy", *Naukovi zapysky Ternopilskoho natsionalnoho pedahohichnoho universytetu imeni Volodymyra Hnatiuka. Ser. Pedahohika*, No. 3, pp. 175-182. (in Ukr.)
6. Finni, N.R. (2005), *Pebenok s cerebral'nym paralichom. Pomoshch', uhod, razvitie* [Baby with cerebral palsy. Assistance, care, development], Moscow. (in Russ.)
7. Shevtsov, A.G. (2007), "Occupational therapy as an interdisciplinary sphere of rehabilitation activity", *Naukovyi chasopys NPU imeni M.P.Drahomanova. Seriia № 19. Korektsiina pedahohika ta psykholohiia*, No. 8, pp. 81-88. (in Ukr.)
8. Choi, B.C. & Pak, A.W. (2006), "Multidisciplinarity, interdisciplinarity and transdisciplinarity in health research, services, education and policy: 1. definitions, objectives, and evidence of effectiveness", *Clin Invest Med.*, Vol. 29, Iss. 6, pp. 351-364.
9. Gunel, K.M. (2009), "Rehabilitation of children with cerebral palsy from a physiotherapist's perspective", *Acta Orthop Traumatol Turc.*, Vol. 43. Iss. 2, pp. 173-180, doi:10.3944/AOTT.2009.173.
10. Helders, P.J., Engelbert, R.H., Custers, J.W., Gorter, J.W., Takken, T. & Van der Net, J. (2003), "Creating and being created: the changing panorama of paediatric rehabilitation", *Pediatr Rehabil.*, Vol. 6, pp. 5-12.
11. Imas, Y. & Lazarieva, O. (2017), "Pre-conditions and modern development of specialities in physical therapy and ergo-therapy in Ukraine", *Фізичне виховання, спорт і культура здоров'я у сучасному суспільстві*, No.2 (38), pp. 10-15.
12. Trabacca, A., Vespino, T., Di Liddo, A. & Russo L. (2016), "Multidisciplinary rehabilitation for patients with cerebral palsy: improving long-term care", *Journal of Multidisciplinary Healthcare*, Vol. 9, pp. 455-462.
13. Vitomskiy. V.V., Lazarieva, O.B., Imas, E.V., Zhovnir, V.A. & Emets, I.N. (2017), "Dynamic of bio-geometric profile indicators of children's with functionally one ventricle posture at stage of physical rehabilitation", *Pedagogics, psychology, medical-biological problems of physical training and sports*, No. 7; 21(3), pp. 146-151, doi:10.15561/18189172.2017.0308.

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