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## **CONTROL PSYCHOPHYSICAL CHILDREN'S DEVELOPMENT UNDER THE CORRECTION MOVEMENT DISORDER**

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### **Abstract**

This article deals with the problem of determining the effectiveness of the method Bobath, as the main methods of psychophysical condition correction of children with movement disorders.

Given the drawbacks of the proposed test detailed rating scale of psychomotor development of children "Map test of motor abilities of children" was adapted and implemented together with the Munich diagnostic testing cards of mental skills and motor abilities of children.

The basis of the experiment became the evaluation of basic motor skills in certain positions and determine the true psychophysical age at the beginning and at the end of the course on corrective exercises by Bobath method.

Considering the universality, accessibility of data and informative test quality it became possible to assess the stages of psychomotor development and mental qualities forming with the true definition of real psychophysical children age with movement disorders 3-4 years.

**Key words: Bobath method, Munich diagnosis, psychomotor development, preschool children, motor disorders.**

**Problem formulation.** Child psychomotor development - is a complex of multilevel process that has its own formation stages, evaluation of motor capabilities, and psychological development of the child (formation of individual traits and nature characteristics, cognitive abilities). In the first child years of life formed the main movement possibilities from the ability to keep his

head and make turns in a horizontal position to the verticalization of the body and walking. [3].

Similarly perfectly formed the basic psychological skills, how to apperceive and compare the spatial patterns, verbal understanding (the ability to determine the meaning of words), perceptual speed, mechanical memory. However, children who have impaired psychomotor development or the first and second years of life, even at the age of 3 and 4 years old, do not have the character data [11].

So psychomotor development of children during the first 3 - 4 years of life are the actual object of study because early detection of motor disorders - is the foundation for further effective corrections.

There are certain standards of child psychomotor development. According to these standards it is possible to determine development disabilities and promptly conduct a series of corrective actions that will help to socialize and stimulate the child further development. In fact according to E.M.Mastyukova psychomotor development of children is the result of organic lesions of the central nervous system [1].

There are a number of rating scale formation movements and basic mental functions of children. However, they have a number of features and complexities in use. For example the scale of assessment of psychomotor development of children by L. Jurba, according to which it is possible to evaluate the development of the child only the first year of life, noted that this scale is multileveled and is not available for parents, that makes difficulties to of violations detection [2].

The children description by E. Arkhipova, more detailed, but has some of its features, much attention is paid to the formation of language, and the surface disruption mastering of basic motor skills, there is no point scale evaluation [12].

**The aim of this study** is to determine the stages of mental and physical development of children during the correction movement disorders.

Timely detection of abnormalities of psychomotor development system is based on systematic evolutionary - dynamic approach. It is recognized that abuses can be found in the first minutes of child's life by the method of inspection of the newborn by Apgar scale (respiratory, skin, throbbing, muscle tone, reflex activity), anthropometric measurement of the volume of the head (micro / hydrocephalus), a major stigma dysembryogenetic [12].

So the main objective of the study is to determine the effectiveness of the children correction of motor disorders with delayed mental and physical development.

A negative factor for estimation of psychomotor development of children is the fact that almost all the existing scale or table rules are designed to assess infants of first year of life that concerning child development of second, third, fourth, and so on criteria are barely described.

According to the theory of A. Bernstein about levels of movements building where the motor act is a complex multi-building, which is headed by the top level (semantic structure) and a number of background levels (technical component movements). It should be noted that each level of building movements is characterized by morphological localization, leading afferentation, specific properties movements, the main role and background motor acts placed higher levels of pathological syndromes, dysfunctions and age factor.

It is necessary to objectively assess the special needs of psychophysical children development with violation of musculoskeletal system and psycho-emotional sphere and do not tied to chronological (passport) age, but directly assessing skills of the child and determining its true psychobiological age [5].

There is a detailed, objective, accessible and easy to use, open to the parent rating scale of children from 3 months to adulthood "card - a test of motor

abilities of children from 3 months to adulthood ". Based on the test data, we can easily trace the dynamics of psychomotor development of children of any age that is undergoing corrective and preventive measures, and has developmental delay and a child who is developing normally. Given the fact that the test "KTRMD" has a 6 point scale, and 8 categories (on the stomach, back, sitting, kneeling in the position for four , on its hunkers, walking and transfer the body weight from one foot) evaluation of motor capabilities and counting results are not requires long-time costs [6].

It should be noted that this scale, although it is informative and detailed, helps in the objective and qualitative assessment of psychomotor development stages infants, preschool and school age, but it tests only measure motor development of child.

So there is a need to introduce the direct testing of child mental qualities that will help to trace the quality of corrective measures [7].

There are a number of tests (table tests to assess physical and mental development of children aged from 1 month to 3 years including data by L.O. Badalyan, etc., that estimate rates of mental development of children, but they have several disadvantages, some trace only individual performance, others tightly pegged to age or diagnosis. But Munich diagnosis of psychomotor development of preschool children in symbiosis with KTRMD is determines the development, both physical and mental qualities of the child. According to tests it can be identified and traced not only the dynamics of psychomotor development, but psychophysical and determine the true age of the child [6].

Munich diagnostics is a system of complex research aimed at measuring the level of certain areas of the child's body. The system is the first objective, as determined through testing the possibilities of movement of the child, facing the understanding of language, the ability to speak, listen, see, remember, actually determine the level of psychomotor capabilities. [10]

Reliability is noted, thanks to indicators of Munich diagnosis, the degree of compliance of a child his age passport and identification of mental and physical age is determined that is a unique criterion that gives an objective assessment of corrective measures, such as studies on developing correctional Bobath method [7].

It is also traced reliability of diagnosis, that determined by the degree of accuracy with which the test measures, that it must measure (Mishel). This system is an integral part of early diagnosis of violations and corrective measures for socialization and adaptation of preschool children. Diagnostic card includes important functional areas of child development with the circumstances it is clear how important this multifunctional diagnosis [5].

But no matter how multifaceted the Munich system is, and as it is widely disclose the stages of mental development of the child, a description of motor development and formation of motor skills are not sufficient and generalized, as for example: skill revolution from back to belly varies from 3do6 months, at such an early age delays in identifying sex-motor development and corrective measures so long index rules can lead to persistent and often irreversible consequences. To improve and more objective assessment of motor abilities of children as the first year of life to adulthood it is perfectly fits "KTRMD." Based on this map, you can easily identify opportunities in key child Starting position: lying on his back and stomach, kneeling, sitting, etc .; evaluate the opportunity to make turns to the side and back of the abdomen and back and more complex skills, like the ability to crawl and walk. [6]

Given that Munich diagnostics enables to assess mental development and show the differences between the passport and psychophysical age child "KTRMD" determines motor stages development that based on these two scales may assess psychomotor development stages and psychophysical determine the age of the child before and after corrective exercises Bobath method [4].

The basis of the study was the "The Future." At the beginning and end of the 10 day course of developing the method Bobath exercises, conducted every 2 - 3 days there were examined 35 children aged 3-4 years of motor disorders. Experimental group consisted of children who worked the first time with method of Bobath.

In Table. 1 it is showed the dynamics of motor activity in separate regulations during the first course of Bobath therapy in children surveyed categories.

Table 1

The dynamics of distribution estimates mastery of basic motor skills of children 3 - 4 years old with movement disorders while remedial developmental time course studies by Bobath (%)

The levels of development basic motor skills	course	Lying on the back	Lying on the stomach	Sitting	On the four	On the hunkers	On the knees	Walking	On the one leg
Great	b. c.	39	27	39	36	20	1	32	13
	e. c.	40	25	45	39	26	3	30	25
Good	b. c.	36	50	39	35	32	27	27	24
	e. c.	37	52	34	34	30	28	35	28
Sufficient	b. c.	14	23	19	23	25	45	19	26
	e. c.	9	20	21	20	22	47	15	19
Satisfactory	b. c.	11	0	3	6	20	11	14	22
	e. c.	14	1	0	7	18	9	15	18
Unsatisfactory	b. c.	0	3	0	0	3	11	8	15
	e. c.	0	2	0	0	4	13	5	10
Absolutely unsatisfactory	b. c.	0	0	0	0	0	5	0	0
	e. c.	0	0	0	0	0	0	0	0

Note: b. c. – beginning of the course; e. c. – end of the course.

From Table 1 it can be noted that in the course of the method of Bobath, motor skills in the supine position improved slightly, primarily due to the increase of excellent options that increased from 36% to 40%. Some improvement was noted in the assessment of motor skills in position on the

stomach - due to independently receive and hold position. Noteworthy opportunity to take a position and hold it in a sitting position, where the rate increased from 39% to 45%. Standing on four at the beginning at the course of developing remedial classes Bobath by only 36% of the total number of children can independently move in a given situation, and at the end of the course 39%, which suggests the impact of the proposed method is effective for back muscles and limbs .

Significantly improved indexes in the transition to a position on hunkers and self-retention on knees as for individual assessments (fig.1) and for ordinary (fig.2).

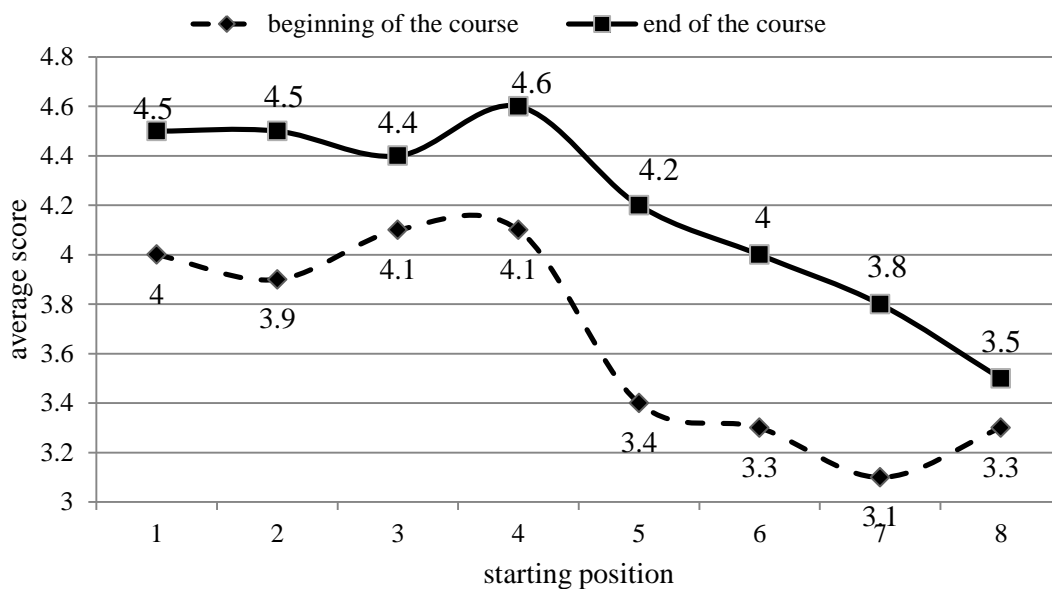


Fig. 1. Average score assess motor skills at the beginning and at the end of course Bobath therapy. Starting position: 1- lying on the back; 2 - lying on the stomach; 3 - sitting; 4 - on the four; 5 - on the hunkers; 6 - on the knees; 7 - walking; 8 - on the one leg.

But a significant effect of course correction classes by method Bobath should be considered a significant improvement opportunities for children with movement disorders perform stand on one foot increase in excellent assessment to 12%, indicating a significant impact on the development of coordination

abilities by improving the function of the vestibular apparatus and proprioceptive sensitivity apparatus. Important is that one course of developmental classes for Bobath method has a significant influence in shaping the skills of walking 3% of the total number of children have mastered this skill. It should be noted that all investigated motor skills held more or less pronounced improvement.

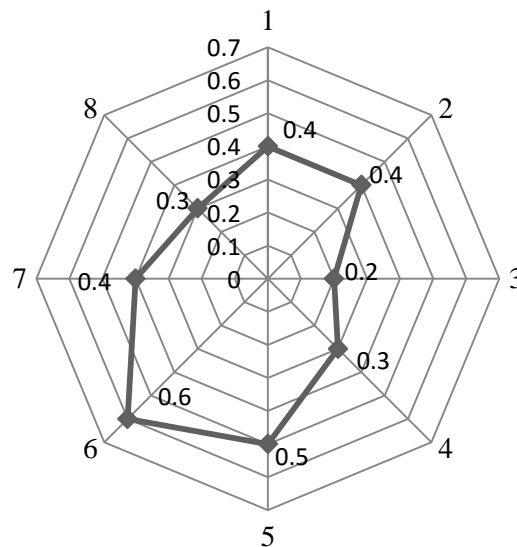


Fig. 2. The growth estimates of motor skills of children 3-4 years with movement disorders by remedial developmental time course studies Bobath method; Starting position: 1- lying on the back; 2 - lying on the stomach; 3 - sitting; 4 - on the four; 5 - on the hunkers; 6 - on the knees; 7 - walking; 8 - on the one leg.

Recent data confirmed listed in Fig. 1; Fig. 2, which presents the growth of average ratings for each motor skill. Given the latter it could argue that after the first course Bobath therapy there was a significant improvement of the skills of standing on his knees, mastering of free walking restructuring occurred in neuro-muscular torso and lower limbs, the vestibular apparatus. The data obtained in our pilot study showed that the first course of remedial classes for Bobath method helps to optimize muscle tone in varying degrees of severity. In carrying some motor tests unidirectional marked improvement. Determine what



Bobath method successively promotes the formation function of the musculoskeletal system.

But it is determined that a reasonable improvement of higher motor functions need a longer course of remedial classes for developing by this method.

For the ratio experiment of Bobath method impact to increase mental and physical age of the child, used Munich diagnosis.

Table 2 shows the relationship of chronological, social, and mental and physical children age under the Munich diagnosis at the beginning and at the end of developmental corrective exercises by Bobath method.

Table2

Average rate of age children's dynamics with movement disorders (months)

Age	At the beginning	At the end
Chronological	41	41
Social	25	26
Psychophysical	26	27

With tab.2 determined that the average chronological (passport) age in group was 41 months, so the social age, at the beginning of the course was 25 months, and in the end increased by only one indicator, as well as psychophysical from 26 to 27 months. But even such a small dynamics is a measure of socialization and the development of mental processes (thinking, language and memory) and suggests that developing remedial classes by method Bobath is positive impact not only on motor development, but also the formation of simple mental qualities ( attention, imagination, responses to stimuli) children with movement disorders.

**Conclusions and recommendations for further research.** The results of our study suggest to confirm that the Bobath technique has its own place in the correction of psychomotor system development of children with movement

disorders. Last substantiated sufficiently significant effects, which are characterized by positive dynamics not only in mastering motor skills but also mental qualities and development after one course of remedial classes by Bobath method.

Also it is proved that Munich complementary diagnostic card supplements "KTRM" thanks to given tests it became possible to qualitatively assess of the dynamics of psychomotor development, stages of basic motor skills and mental and physical determine the true age children with movement disorders.

It became possible to argue that the study of mental and physical development of children during the correction movement disorders by Bobath method monitor and evaluate using thanks to "Cards - test of motor abilities of children from 3 months to adulthood," which determines the dynamics of the formation of basic motor skills. The dynamics of basic mental skills and determine of the true age of psychophysical rationally assess the Munich diagnostic card. The prospect of further research activities is developing in conducting corrective exercises Bobath method for children aged 3 months to adulthood.

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