

Evaluating the effectiveness of the developed method using the costume "Adeli" for primary school children with cerebral palsy

Kovalev Yu, exercise physiologist St. Petersburg City Center Rehabilitation treatment of children with intellectual disabilities

Key words: motor development, cerebral palsy, primary school age, adaptive physical education.

Abstract . The paper shows the use of means of adaptive physical training in rehabilitation of primary school age children with cerebral palsy. An integrated approach is aimed at the rehabilitation of children with cerebral palsy in city rehabilitation center children.

introduction

According to the Ministry of Labour and Social Development of the Russian Federation in 2000 in Russia there are more than 678.4 thousand. In 2005, more than 700 thousand. Children with disabilities under the age of 18 years.

The prevalence of cerebral palsy (CP) in different countries with well-developed perinatal using from 1 to 5.8 per 1,000 live births.

Study of the Development of motor sphere of children with cerebral palsy (CP) of different ages studied by many researchers (MI Lantern, 1981; LO Badalyan, SL Bortfeld, 1986; Semenov KA 1999 H . A. Gross, 2000; SP Evseev, 2000; A. Potap-chuk, 2003; AA Potapchuk, 2007).

For children with cerebral palsy, in the AFC system designed for hippotherapy program (P. Gurvich, 1997), swimming (DF Mosunov, 2003), fitbolterapii (AA Potapchuk, 2002).

In recent years, work with the children applied costume "Adele", which greatly improves balance and orientation in space, increases the activity of movements and improves the function of support ability of the patients.

We have developed an experimental technique of employment by the AFC for the primary school children with cerebral palsy.

Sharing a multidisciplinary approach and the means AFC (physiotherapy, hydrotherapy, fitball gymnastics, correctional and educational games) with the costume "Adele" has an effect on locomotor function of primary school age children with cerebral palsy.

The purpose, methods and organization studies

The aim of the study is improvement of locomotor function in children of primary school age to the CPU by means of the AFC. Research objectives:

1. Examine the state of the problem of motor disorders in school-age children with cerebral palsy.
2. Determine the physical fitness of primary school age children with cerebral palsy.
3. To develop an experimental technique classes with the use of the AFC for the primary school children with cerebral palsy.
4. To determine the effectiveness of the author's experimental method.

The study was conducted over four years, from 2003 to 2007, on the basis of the St. Petersburg City rehabilitation center children with intellectual disabilities. Analyzed contingent - 60 children (27 girls and 33 boys) of primary school age with cerebral palsy. Sport exercise took place throughout the period of observation.

The study was conducted in stages.

In the first phase (2003-2004 gg.) Analyzed scientific and methodical literature on research problem studied opinion AFC professionals, educators specialized agencies, parents of disabled children.

In the second phase (2004-2006 gg.) Was developed and implemented experimental technique lessons for the development of locomotor function in school-age children with cerebral palsy. Perform diagnostics level of development of physical qualities in children. Formed experimental and control groups of children 6-7 years of age with a primary diagnosis of cerebral palsy, spastic diplegia, a safe intelligence and a wide range of co-morbidities. The experimental group consisted of 30 children (14 girls and 16 boys, control group - 30 children (13 girls and 17 boys) engaged in the center of rehabilitation treatment in the control group sessions were conducted according to traditional methods in the experimental group sessions were conducted with the inclusion of the AFC means and. using the "Adele" suit.

Spend a pedagogical experiment.

Generated data set, which includes:

- Basic data on the functional state of the musculoskeletal system and the studied contingent on manipulative activities in the hands of children of the control and experimental groups;
- The results of dynamic observation of the performance of the functional state of the musculoskeletal system and manipulative function in children hand control and experimental groups.

In the third phase (2006-2007 gg.) Conducted pedagogical interpretation of experimental results, evaluated the effectiveness of the experimental procedure using lessons AFC costume "Adele" and multidisciplinary approach to primary school children with cerebral palsy. Test the studied parameters, matemaicheskaya processing and analysis of results of pedagogical experiment, draw conclusions, practical recommendations are developed.

In order to justify the experimental technique lessons AFC conducted surveys and testing of children aimed at identifying the characteristics of the formation of motor skills in children of primary school age with cerebral palsy.

experimental technique classes in the AFC, the AFC means includes treatments and preventive tools using (Fig. 1) "Adeli" suit has been developed on the basis of the data obtained for the development of locomotor function in school-

age children with cerebral palsy. Course length was two and a half months. At first diagnosis, then the comprehensive rehabilitation and performance evaluation.

С Р Е Д	С Т В А
адаптивной физической культуры:	лечебно-профилактические:
– костюм «Адели»;	– массаж;
– лечебная гимнастика (ЛГ);	– физиотерапия (ФТЛ);
– механотерапия;	– биологически обратная связь (БОС);
– фитбол-гимнастика;	– иглорефлексотерапия (ИРТ);
– коррекционно-развивающие игры.	– эрготерапия.

Fig. 1. Means of ROS and therapeutic and preventive agents for primary school children with cerebral palsy. Features of a technique to sequence the application means AFC and physical rehabilitation, using costume "Adele": motor act of training was carried out in costume "Adele" on the bars or on a treadmill, and then stepping movement perfected without a suit in different starting positions (standing, sitting, lying down, lying on his side, and others.). Dosage studies in "Adeli" suit - from 15 minutes to two hours (Figure 2.).



Fig. 2. Classes AFC suit "Adeli" for children with cerebral palsy. Development of locomotor function.

The greatest efficiency and safety of the resulting effect can be expected when the classes in "Adeli" suit in a comprehensive phased rehabilitation system, individually adapted for each individual child, taking into account his age, shape and degree of severity of the disease, the leading pathological link state of emotional and intellectual spheres. It is especially important for school-age children with cerebral palsy develop locomotor function of various means of ROS (Fig. 3).

The experimental group used tests for locomotor function (manipulative activities of arms, power endurance of muscles supporting ability) and a survey of parents of children associated with the activities of daily life. Children received fifteen sessions, therapeutic exercises classes, costume "Adele", mechanotherapy, massage, FTL, ten sessions of biofeedback, occupational therapy, IRT, which were carried out 2-3 times a week, for two and a half months, twice a year, for four years.

Classes are held individually by the experimental procedure consisting of:

- Exercises in "Adeli" suit (correct stereotype of walk, balance, anti-gravity effect, proprioceptive control);
- Gymnastics (improvement of locomotor function: the manipulative activities of the hands, strength endurance muscle oporosobnosti);
- Fitball gymnastics (improvement of the vestibular apparatus);
- Mechanotherapy (improvement of physical activity, the development of joint and muscle strengthening);
- Correctional and educational games (development of compensatory mechanisms to overcome the secondary deviation).

Therapeutic and prophylactic agents spend on doctors IRT and biofeedback, massage by a specialist nurse TTF together with the doctor, ergotherapist. The sequence and timing of the AFC means and preventive tools are presented in Table. 1.

Table 1.

Organization of activities with the use of ROS and preventive tools for the development of locomotor function in children with cerebral palsy

Facilities	Monday	Tuesday	background	Thursday	Friday
"Adeli" suit	+		+		+
Physiotherapy	+		+		+
mechanotherapy		+		+	+
Fitbol-gymnastics	+		+		+
Correctional and educational games	+		+		+
acupuncture		+		+	
Biofeedback	+		+		+
Massage		+		+	+
physiotherapy	+		+		+
ergotherapy		+		+	
training time, min	120-255	110-160	120-255	110-160	170-345

In the control group children received fifteen sessions of therapeutic exercises, mechanotherapy, massage sessions, sessions FTL, ten sessions of biofeedback, occupational therapy, IRT sessions, which are held 2-3 times a week, for two and a half months, twice a year, for four years.

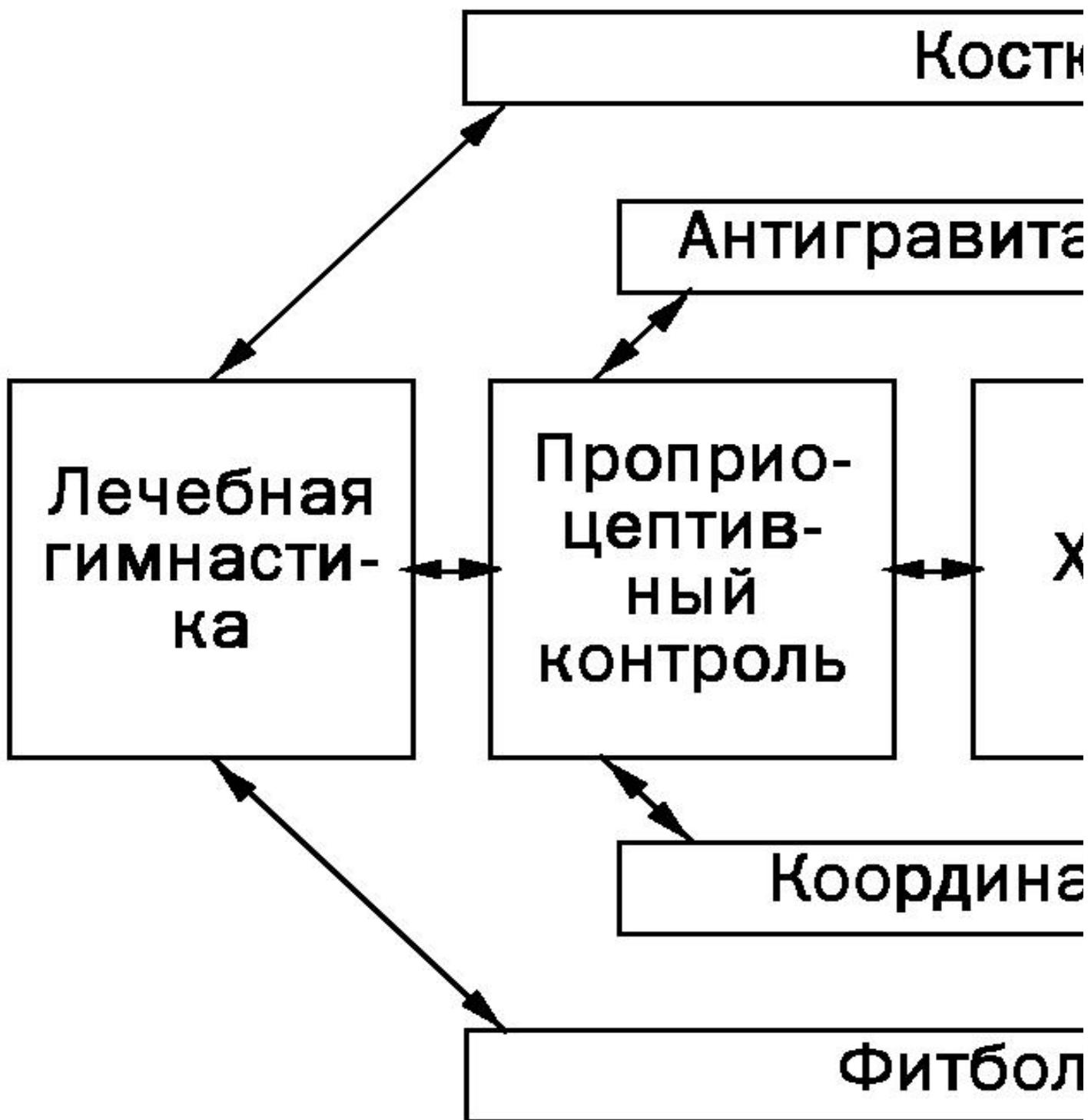


Fig. 3. Development of locomotor function by means of the AFC.

Results and its discussion

Analysis of the results from 2003 to 2007, observations revealed the dynamics of the functional state of the musculoskeletal system and ma-hand nipulyativnoy activity in primary school children with cerebral palsy (Table. 2).
table 2

The results shown children, experimental and control groups before and after the experiment (n = 30)

Test	Group		experimental	warning	P
	n	X ± Sx	X ± s x		

	Collection of the pyramid (right hand) in with.	before after	30 30	10,3±0,2 6,2±0,1	10,4±0,3 8,7±0,2	<0.001
	Temp right hand movement in the number of times per 10 seconds.	before after	30 30	12,6±0,2 19,06±0,2	12,4±0,2 15,9±0,2	<0.001
	Passing the apparatus from one hand to the other in a.	before after	30 30	11,03±0,2 18,0±0,3	10,8±0,2 14,06±0,2	<0.001
	Strength endurance in the muscles of the back with.	before after	30 30	25,5±1,2 108,0±2,8	24,5±1,4 57,3±1,9	<0.001
	Strength endurance abdominal muscles in to.	before after	30 30	14,5±0,5 44,3±1,07	14,5±0,4 31,7±0,8	<0.001
	Strength endurance in the muscles of the neck with.	before after	30 30	9,6±0,3 17,9±0,4	9,6±0,3 17,9±0,4	<0.001
	Strength endurance gluteus maximus muscle in his right leg with.	before after	30 30	19,4±0,7 42,2±1,1	18,4±0,8 30,4±0,9	<0.001
	Strength endurance gluteus maximus muscle in his left leg with.	before after	30 30	18,7±0,6 42,2±1,1	17,5±0,7 29,6±0,8	<0.001
	Strength endurance gluteus medius muscle in his right leg with.	before after	30 30	14,9±0,3 33,4±0,7	13,8±0,4 24,2±0,6	<0.001
0	Strength endurance gluteus medius muscle in his left leg with.	before after	30 30	13,2±0,2 30,6±0,6	13,2±0,4 23,4±0,6	<0.001
1	Oporosposobnosti on the right foot in a.	before after	30 30	4,3±0,2 8,9±0,3	3,9±0,2 6,1±0,2	<0.001
2	Oporosposobnosti on his left foot in a.	before after	30 30	4,4±0,1 9,3±0,2	3,9±0,1 5,9±0,2	<0.001

As can be seen from Table 2 increase in activity indicators manipulative hands; power endurance of muscles; oporosposobnosti children experimental group than in the control group with high level of significant differences. It is especially important to note the improvement oporosposobnosti.

The effectiveness of the costume "Adele" in the lessons of the AFC for the primary school children with CP is confirmed by the dynamics of the functional state of the musculoskeletal system, muscle strength endurance and manipulative activities of hands. Application costume "Adele" not only leads to significant improvement in the test results, but also to changes in the factor structure of the functional abilities of children, indicating that the differentiation processes in the central nervous system under the influence of training.

Conclusions

1. An analysis of the scientific and methodological literature and teacher observation suggest that methods of locomotor function in children of primary school age with CP does not take into account the tendency to deterioration of the musculoskeletal system, and insufficient attention is paid to specialists multidisciplinary approach.
2. The study scientifically that a multidisciplinary approach should include: work with the family, parents' motivation to work together; the cooperation of all professionals working with one child; preparation of specialists differentiated and individual employment plan; an interdisciplinary examination of children specialists.
3. Multidisciplinary approach in the classroom for the AFC to primary school children with CP showed a significant impact on improving the functional state of the musculoskeletal system in terms of power endurance of back muscles, abdominals, medium and large gluteal muscles, supporting ability.
4. The proposed experimental technique classes in the AFC for the development of locomotor function with the inclusion multidisciplinary-foot approach and means the AFC (physiotherapy, hydrotherapy, fitball gymnastics, correctional and educational games) with the use of "Adeli" suit, decides to health, educational and-compensation-tional problems to reduce motor impairment, an increase in the general motor activity, improve coordination and orientation in space for school-age children with cerebral palsy.
5. Carrying out the experimental group classes in the AFC with "Adeli" suit significantly improves the support ability, balance and orientation in space that gives the child a greater activity and mobility in everyday life. Use costume "Adele" in the classroom for the AFC to primary school children with cerebral palsy not only leads to significant improvement in test performance, but also to changes in the factor structure of the functional and manipulative abilities of children, indicating that the differentiation processes in the central nervous system under the influence represented by an integrated approach.
6. The use of the experimental method of employment on the AFC for the development of the locomotor function of children of primary school age with cerebral palsy contributed to the improvement of the functional state of the musculoskeletal system, compared with children who are engaged in the traditional method. In the experimental group was significantly noticeable increase in the results recorded in all aspects of functional parameters.

literature

1. LO Badalyan Cerebral Palsy / LO Badalyan, LT Zhurba, OV Timonina. - Kiev: Health, 1988. -326 p.
2. Bortfeld SA Therapeutic physical training and massage with cerebral palsy / SA Bortfeld EN Rogachev. - L. : Medicine, Le ningr. Office, 1986. - 162 p.

3. Gross NA Physical rehabilitation of children with impaired function of the musculoskeletal system / NA Gross. - M. : Soviet Sport, 2000. - 224 p.
4. Yevseyev SP Adaptive Physical Education: Textbook. Benefit / SP Evseev LV Shapkova. - M. : Soviet Sport, 2000. - 240 p.
5. Ippolitova MV Children with cerebral palsy in the family / MV Ippolitova, RD Babenkova, EM Mastjukova. - M. : Education, 1980. - 78 p.
6. Correction outdoor games and exercises for children with developmental disorders: studies. allowance for higher. and environments. prof. Proc. Institutions / State. com. RF for nat. Culture and Sport; ed. LV-Shap-quark. - M. : Soviet Sport, 2002. - 212 p.
7. Therapeutic physical training: a handbook / ed. VA Yepifanova. - M. : Medicine, 1987. - 528 p.
8. Potapchuk AA Methods of adaptive physical training with cerebral palsy // Private method AFC: Textbook / Ed. LV-Shap-quark. - M. : Soviet Sport, 2003. - P. 228-293.
9. Samsonov AV Factor analysis: areas of application and untapped opportunities // Bulletin of the Baltic Pedagogical Academy. Vol. 62. SPb, 2005. - pp. 67-76.
10. Semenova KA clinic and rehabilitation therapy of children cerebral palsy / KA Semenova, EM Mastjukova, MJ Smuglin. - M. : Medicine, 1972. - 329 p.
11. Burns I. R. Early identification of cerebral palsy in high risk infants / I. R. Burns, M. O'Callaghan // Aust Pediatric J. - 1989. -P. 25, 215, 219.
12. RA Campas Treaty cirurgia orthopedic and trauma. Tom Two / Rodrigo Alvarez Campas; Editorial People and Education City of Havana. - Havana, 1986. - 344