

CONTRIBUTION OF PHYSICAL EXERCISE IN REHABILITATION/SOCIAL INTEGRATION OF PEOPLE WITH DISABILITIES

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Abstract

Purpose: Physical exercise can represent dimensions of an individual's personality, which allows us to use a "motor treatment" based on an operational program in the purpose of freedom, improvement and integration of personality. Operational education program "Therapy through movement" consisted of applying a technical approach, simple exercises for training/development of correct breathing, gestures education and fighting stress. The purpose of this research is to remove physical blockings, clenching the muscle, imbalanced movements that are characteristic of persons with disabilities for activation, in a positive sense, of the psyche and their integration into society.

Methods: Research methods and techniques were based on observation, experimental methods, measurements and recording methods as proper investigation methods and methods of processing and interpretation of collected data: statistical and mathematical method and graphical method.

Results: Applying this operational educational program "Therapy through movement" confirmed the working hypothesis for the knowledge complexity of disability and achieving rehabilitation/social integration of persons with disabilities. For the functional test, the arithmetic mean for both boys and girls, from initial testing to the final one is an obvious increase; the final testing of the motor tasks revealed the progress of both boys and girls, compared with initial testing.

Conclusions: On the basis of the processing and interpretation of results we conclude: the practice of these physical exercises and the establishment of certain relationships with others made easier the rehabilitation/integration of persons with disabilities, in the environment and society; a disabled person needs to be recognized for what he is and as he is, therefore, must be helped to participate as much as possible in the social life, providing them with appropriate help and taking the necessary measures. Movement therapy must include the development of general and fine movement, of the motor skill, the education of static and dynamic balance, rhythm and movement coordination, capacity development of perception, orientation and spatial-temporal organization etc. Integrating children with special needs can be achieved if there is a permanent collaboration between pupils, teachers, parents, counselors, NGOs and other viable partners that may be involved.

Key words: physical exercise, rehabilitation, integration, persons with disability.

Introduction

In any society there are certain people who, because of deficiencies, disabilities can not "integrate" into the community by their own forces. Disability, people with disabilities issues, before being emotional problems are social problems.

Therefore society through various mechanisms and levers, should also aim at the real needs and necessity of people with disabilities to ensure full respect for their interests, dignity and their rights in all circumstances and in relation to any reference system in order to integrate them as full members of society.

In education, the "children with special educational needs" are assigned children with special educational needs and requirements are derived primarily from physical, mental, sensory, language, socio-emotional and behavioral disorders often associated, regardless of their severity.

Special Education Unit is an important social environment and rehabilitation of persons with disabilities [C., Cucos, 1999]. Application of motion therapy program is determined by the type of the remaining disability and functional abilities of the individual in this case.

Physical exercises are important segments of motion therapy program, helping individuals with disabilities to develop both motor and social-affective. Well-being can be improved by using repeatedly driving skills, affective-cognitive and communication.

Social integration [V., Horghidan, 2000] expresses the individual's positive attitude towards school by:

- develop mental condition;
- increase the accessibility of educational actions;
- support individual effort on training/education a strong motivation of the educational process;
- a high level of compatibility between the individual and the effort required of the potential of educational activities;
- educational requirements to be consistent with individual potential.

Rehabilitation of individuals with disabilities was achieved so far, based on the old "pity" model. Today it is used the "human rights" model by recognizing that they have the same rights and resources as other members of society [A., Albu, 1999].

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Received 01.05.2011 / Accepted 13.07.2011

Movement therapy is based on the concept that achieving improvements in disabled person's body, at the nervous system level, improvements can be achieved physical and psychological [M., Epuran, 1976]. Movements of the individuals can classify the persons with disabilities as follows:

a. after the contact of the person with the world, the degree of binding with reality - *energetic persons* (quickness of movement) and *people less energetic* (slow movement);

b. after individual emotions - *people hyper-emotive* (unstable, emotional) and *people indifferent* (apathetic).

Research hypothesis

By determining the psychological and motor possibilities defining the person with disability, with what they have significant and which distinguish it from others of the same age and sex, it can be realized the knowledge of the disability complexity.

Research procedures and methods

The research took place in grades VI and VIII of the Special School no. 2 of Ploiesti, and consisted of 15 boys and 10 girls, people with medical deficiencies moderate.

The research was conducted during 30 physical education lessons, in the second quarter of the school year 2009-2010 and consisted of applying the lessons of physical education means from the operational educational program in "Therapy through movement".

Functional tests (spirometry = measure *vital lung capacity* is expressed in cm^3) and motor (lower limb muscle strength by the task *jump from standing position*, upper limb muscle strength by *throwing oina balls* test and shift speed by *speed running test the distance of 25 m, starting from the feet*) were made in the lessons no. 1 and 30.

Selection of the means used by the titular teacher, was in agreement with the research's author and in concordance with the physical education curriculum and the curriculum of the school.

For purposes of the experiment were used proper methods of investigation: observation, measurement and recording method, experimental method and methods of processing and interpretation of collected data: statistical and mathematical method and the graphic method.

By the use of the operational educational program involving the movement can be addressed topics that pertain to membership requirements, inspection requirements and the need for affection.

Operational education program "Therapy through movement" includes simple exercises for

training/development of a correct breathing, education and combating distress gesture:

1. *Simple exercises for training / development of a correct breathing* - is well known that a correct breathing and respiratory hygiene is beneficial in the rehabilitation/integration of persons with disabilities [A., Dragnea, et al., 2000].

For learning a correct breathing some basic rules must be followed: the exercises will be conducted in a well-ventilated, with windows wide open or if weather conditions permit, outdoor inspiration (breathe) is performed on the nose and exhalation (remove all air from the lungs) through the mouth, these exercises are conducted in a specific order:

A. person/persons with disabilities are placed in a relaxed, comfortable position and make deep inhale movements and forced exhale by completely emptied of air through the lungs; the condition will not cramp individual basis and will always remain relaxed.

B. breathing movements will take place in the way: 1. respiration to proceed in a balanced way between the two phases, air inhaling slowly through your nose, exhaling all air from the lungs; 2. air into the lungs will be maintained for three seconds after a deep inspiration and exhale slowly through the air remove - dosage: this time of the exercise will run for 5-6 minutes; clarification - if you can, the air in the chest can be maintained more than three seconds. 3. awareness of diaphragm muscle action by performing diaphragmatic breathing with the placement of the left/right hand on the abdomen and implicit of the hand placed on it; dosage - will perform diaphragmatic breathing for 6-8 minutes, specifying - phase begins after the breathing out stage.

C. breathing exercises repeated until the person/persons with disabilities is forming a uniform rate of breathing. Recommendations for educating a uniform, complete pace of breathing: the exhalation phase to be achieved in a greater time (removing air from the lungs) than the phase of inspiration by the rule - two seconds, pulling air into the chest and four seconds, remove the air chest.

2. *Gestures education* - can be achieved by the action on the tone and style of the particular characteristics (amplitude, energy, direction, etc) printed movements of the person or persons with disabilities to communicate with others through gestures such as: "a way of saying" and "kind to do".

The exercises consist of imitating the repetition of gestures and appearances by people who are given certain attitudes: anger, fear, kindness, courage, leading to the psychological orientation towards this type of behavior, according

to reproduce a sense of its expression. By educating gestures can achieve a normalization of the function of gestures disrupted, forming a “new way of being”.

3. Fighting distress - is realized through the execution of physical exercises (which can be used by normal people not only to those with disabilities), according to medical recommendation, the type and degree of disability of each individual, namely:

A. Outdoor walks of 7 to 12 minutes by speeding up your heart rate and reduced state of nervous tension.

B. Climbing and descending stairs (who can) for 3-6 minutes to soothe the nervous system.

C. Seated in a comfortable position, rotation, as relaxed as possible, shoulders forward and backward, dosage 10 to 12 repetitions.

D. From the standing position with feet slightly apart, torso bent slightly forward, allow your

arms to hang forward, relaxed, dosage - 3-7 repetitions.

E. From standing position, sitting or lying down, running on the flexion of metacarpal phalanges and carpal (wrist tightening) and imagine all the tension that runs into fists, running for 3-12 seconds, dosage - 5-10 repetitions .

F. From the standing or sitting position, eyes closed, neck relaxed, imagine that nose is provided with a chalk on a blackboard and write our name, dosage - 2 - 3 repetitions.

G. From the standing position with feet slightly apart, the performance of upper limbs movements (that is looking to be involved in these movements throughout the body) to simulate cutting, turning and hitting a specific object by kick boxing, dosage 5 to 10 seconds, repeat 2 - 4 times.

Research results and their interpretation

Data collected and placed in tables were centralized statistically settling: the arithmetic mean (X), standard deviation (S), coefficient of variability (Cv%) and mean estimation error (EEM) [M., Niculescu, 2002].

1. Functional test (table 1 and 2, figure 1).

Vital capacity represents the amount of air you can exhale with a forced ventilation, which occurs after a deep inspiration, the lungs, the subjects are not bound by time; were calculated the following values of statistical indicators:

❖ The arithmetic mean for both boys and girls, from initial testing to the final is an obvious increase in the difference between the two tests are: 310,20 cm³ for boys and girls of 400,16 cm³;

❖ The calculation of Cv% coefficient of variability presents, both for the sample of boys and girls, medium homogeneous groups, range 10-20%;

❖ Estimated arithmetic mean error gives us a values between 2821,12 ÷ 2989,12 (2900,12 ± 89) for the arithmetic mean, after initial testing and 3109,12 ÷ 3311,12 (3210,12 ± 101) after the final testing for boys, representing the arithmetic mean of the confidence interval to the threshold of significance p <0,01, 99% confidence level. For girls the confidence interval for the arithmetic mean value is in the range 2008,23 ÷ 2212,23 (2110,23 ± 102) after initial testing and 2404,23 ÷ 2617,23 (2510,23 ± 106) after final testing, representing the confidence interval of the arithmetic mean at the threshold of significance p <0,01, 99% confidence level.

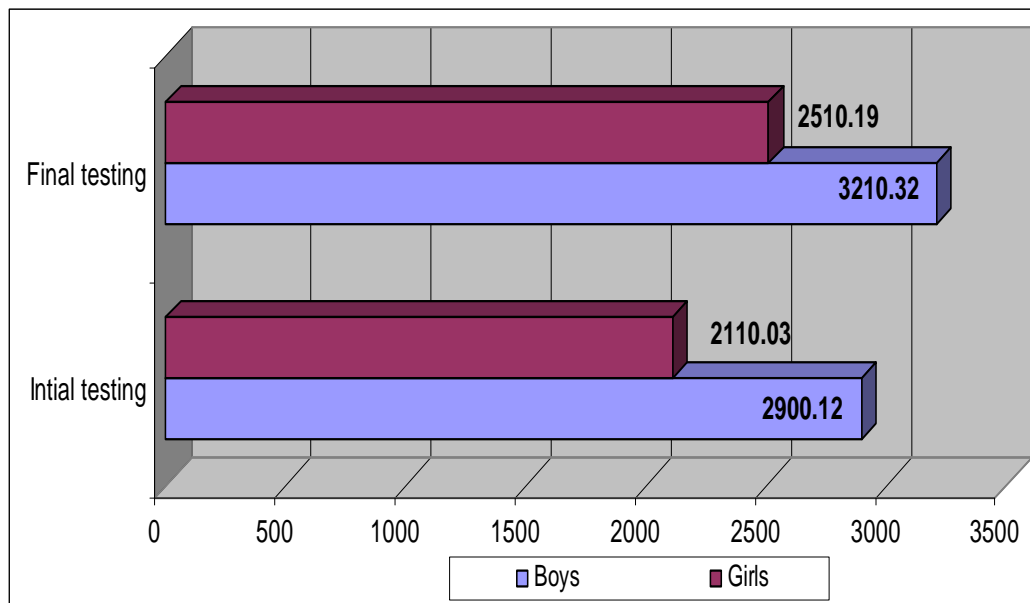


Figure 1. Dynamic functional test arithmetic means**Table 1. Calculated values of statistical indicators - initial testing**

Tasks	Statistical indicators	Vital capacity (cm ³)	Speed running (seconds)	Jump in length from standing position (cm)	Throwing the oina ball (m)
Boys	X	2900,12	5,52	156,44	29,12
	S	121,57	0,45	6,12	7,81
	Cv	15,01	12,36	15,24	19,11
	EEm	2900,12±89	5,52±0,41	156,44±32,01	29,12±3,16
Girls	X	2110,03	6,33	134,21	18,77
	S	95,32	0,57	7,03	8,57
	Cv	16,25	14,32	16,33	17,77
	EEm	2110,23±102	6,31±0,55	134,21±21,14	18,77±4,12

2. Motor tests (table 1 and 2, figure 2).

The running speed test on the distance of 25 meters, standing start, through which was tested the shift speed of the subjects:

❖ The arithmetic mean – after the final test was calculated as an arithmetic mean best by 0,32 seconds, compared to the initial testing of the sample of boys and 0.22 seconds for the sample of girls.

❖ The coefficient of variation Cv% after both tests, indicating groups with a medium homogeneity at both girls and boys, between 10-20%.

❖ Estimated arithmetic mean error calculation gives us the following situation: for boys – the

arithmetic mean is located in the confidence interval $5,09 \div 6,33$ ($5,52 \pm 0,41$), after initial testing and $4,43 \div 6,01$ ($5,22 \pm 0,39$) after final testing, representing the confidence interval of the arithmetic mean at the threshold of significance $p < 0,01$, confidence level of 99%; for girls - the arithmetic mean is in the range of the confidence interval $5,46 \div 7,26$ ($6,31 \pm 0,55$) after initial testing and $5,16 \div 6,46$ ($6,01 \pm 0,45$) after final testing, confidence interval representing the arithmetic mean at the threshold of significance $p < 0,01$, 99% confidence level.

Table 2. Calculated values of statistical indicators - final testing

Tasks	Statistical indicators	Vital capacity (cm ³)	Speed running (seconds)	Jump in length from standing position (cm)	Throwing the oina ball (m)
Boys	X	3210,32	5,22	163,74	32,34
	S	133,54	0,49	5,55	6,89
	Cv	14,71	13,27	14,44	19,11
	EEm	3210,12±101	5,22±0,39	163,74±36,71	32,34±3,72
Girls	X	2510,19	6,11	147,32	20,87
	S	98,52	0,51	8,11	7,65
	Cv	17,45	16,72	18,29	18,07
	EEm	2510,23±106	6,01±0,45	147,32±23,54	20,87±5,42

In the task of *jump in length from standing position*, the explosive force was tested at the level of the horizontal inferior limbs muscle, was calculated:

❖ Calculated arithmetic mean recorded a progress of 7,30 cm, compared with the initial test sample of boys and 13,11 cm for the sample of girls.

❖ Cv% coefficient of variability calculated from the two samples presents us groups with

medium uniformity, both after initial testing and after the final, 10-20% range.

❖ Estimated arithmetic mean error: the sample of boys - arithmetic mean is located in the confidence interval $124,43 \div 188,45$ ($156,44 \pm 32,01$) after initial testing and $127,03 \div 200,43$ ($163,74 \pm 36,71$) after final testing, representing the confidence interval of the arithmetic mean at the threshold of significance $p < 0,01$, 99% confidence; the sample of girls - the arithmetic mean is located in

the confidence interval $113,07 \div 155,35$ ($134,21 \pm 21,14$) after initial testing and $121,78 \div 172,86$ ($147,32 \pm 23,54$) after final testing, representing the

confidence interval of the arithmetic mean at the threshold of significance $p < 0,01$, 99% confidence level.

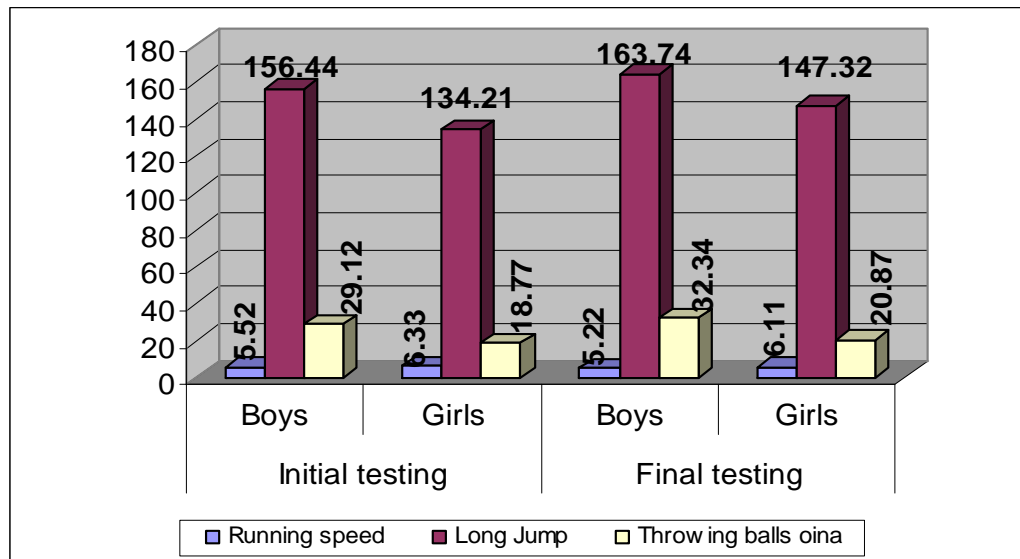


Figure 2. Arithmetic means dynamics for the motor tests

In the task of *throwing the oina ball*, through which we tested the explosive force at the level of the upper limbs muscles, was calculated:

❖ Arithmetic mean progressed by 3,22 m, compared with the initial test at the boys' sample and by 2,10 m for the girls sampled.

❖ The coefficient of variation $Cv\%$ presents an average homogeneity groups, 10-20% range, both for the samples of boys and girls.

❖ Estimated arithmetic mean error EEm presents a framing within the values $25,96 \div 32,28$ ($29,12 \pm 3,16$) for the arithmetic mean of the boys and the value interval $14,65 \div 22,89$ ($18,77 \pm 4,12$) for the girls, after the initial testing, representing the confidence interval of the mean at the significance threshold $p < 0,01$. The confidence limits of the calculated arithmetic mean after the initial testing are: boys 25,96 and 32,28 and 14,65 and 22,89 girls, and the real mean is within this value interval. After the final testing, the calculation of the estimation mean error is within the value interval $28,62 \div 36,06$ ($32,34 \pm 3,72$) for boys and $15,45 \div 26,29$ ($20,87 \pm 5,42$) for girls, representing the confidence interval of the mean at the confidence threshold $p < 0,01$. The trust limits of the arithmetic mean, calculated after the initial testing are 28,62 and 36,06 for boys and 15,45 and 26,29 for girls, and the real mean is within this value interval.

Conclusions and recommendations

1. Physical exercises that can be used involve the act, action or motor activity and have at their base transposition of feelings in motion.

2. Awareness acts' scales, actions and motor activities by the person/people with disabilities make social integration possible, because the resource discovery, latent, can cope with the situation, which in another time, was blocked.

3. The becoming of movement intrinsic and their involvement in physical activity justifies their physical and mental performance always higher.

4. Movement therapy must include the development of general and fine movement, of motor skill, education of static and dynamic balance, rhythm and movement coordination, capacity development of perception, orientation and spatial-temporal organization etc.

5. Person/people with disabilities can easily adapt to movement situations and their integration can be accelerated if environmental conditions are favorable to movement.

6. Movement therapy program helps disabled people to integrate better into society and to relate better with others.

7. People with disabilities need some adjustments: reducing the area of activity, use of appropriate equipment and convenient one, introducing adapted physical education, reduction of working time, more frequent and longer breaks, the use of documents, actions and motor activities as simple as possible and reducing the pace of

execution, the adaptation of the movement therapy program whenever needed.

8. The person/people with disabilities need understanding, patience and respect.

9. Physical exercises had a significant effect on the ease and take over the aggressiveness and self-aggressiveness, self-stimulation, hyperkinetic behavior and stereotypes installed at these people with disabilities and therefore may be easier to integrate into society.

10. Special education unit in all its components takes part in rehabilitation and integration of children with special educational needs; social integration of children in new social and educational environments that ensure an active and interactive participation with other children also at the local social life, is a way of scholar and social integration for them.

11. School by the actions they engaged in, components of inclusive education should encourage creating of such conditions so that the child with special educational needs can use the educational services tailored to his needs.

12. The content of special education must develop and implement progressive development programs, customized and periodically reviewed.

13. Teachers need to train and develop their individual skills, according to the purpose established for networking and communication with other teachers, parents, etc., can act as a consultant.

14. Selection of teachers in special schools should be made both by professional capacities and also based on "positive attitude".

15. Integrating children with special educational needs can be achieved based on permanent cooperation between students, teachers, parents, counselors, NGOs and other serious stakeholders that may be involved.

16. Social integration of children with special educational needs in the local community is subject to the unity and sustainability in interpersonal relationships in the social groups, the correlation between criteria and behavior, the functional interdependence of the elements of a social system or subsystem.

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