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THE INFLUENCE OF SENSORY SYSTEMS IN MOTOR DEVELOPMENT TO THE PRESCHOOL CHILD

Mihaela ANGHEL[1]

Abstract: *In the first 7 years of life, the child learns to feel and to know their own body and to adapt effectively to the environment. He starts to differentiate the sounds then speak. Learn to use various instruments around them, from toys to things they use for self-service or school activities. All this generates sensory information and must integrate and process them to interact. Sensory integration functions naturally develop in a certain order, and each child follows the same basic sequences. Those who deviate from normal patterns of sensory development later present difficulties in different aspects of life. The objective of this study was to evaluate the effectiveness of sensory integration therapy on improving the neuromotor capacity of children identified as having functional difficulties in the living environment.*

Keywords: *senzory system, motor development.*

1. Introduction

Ayres J. was the first to describe sensory problems as the result of an inefficient neurological process. In the 1950s and 1960s Dr. Ayres developed the theory of sensory integration, being taken over and developed by clinicians around the world. It is estimated that 5-10% of all children have sensory integration deficiencies (Ayres, J., 2007). Miller L, 2004, classifies sensory processing disorder in three main categories: sensory modulation disorder (hyperactive or hopiative), sensory disorder (difficult to distinguish between sensations), and motor-based sensory disorder (heavily conceals an action, plan as organization and movement of the body). Sensory processing disorder occurs in the central nervous system. In its simplest form, the behavioral response unit is composed of a receptor (sense organ), neural impulses that travel along the related, central and eferent pathways, and a resulting muscular (muscular) reaction. When processing is disorganized,

[1] "Vasile Alecsandri" University of Bacău, 157, Calea Mărăşeşti, 600115, Romania.

the brain has difficulty in deciphering sensory information so that the motor response is devoid of coherence and sense.

According to the sensory integration theory, tactile /proprioceptive and vestibular/proprioceptive systems interact with auditory and visual systems all the time provide the multimodal, sensory information systems needed to determine a response significant motor (Raţă, M., 2013). These systems may experience delays in development that may affect daily, social, and educational activities as follows:

Vestibular system	Visiual system
- Inability to keep balance on one leg (especially with eyes closed); - the inability to balance the beam without looking at the feet; - inability to walk heel; -nefficient running and running patterns; - delay in jumping and jumping - it moves permanently (swinging, swinging).	the cross-look tendency; - the tendency to rub the eye frequently; - redness of eyes.
Prprioceptive system	Tactil system
difficulty in dressing; - clumsiness, hold the pencil too tightly breaking its tip. - Handwriting difficulties - difficulty in up and down stairs	low tolerance for touch; -does activities that require prolonged touch; - avoiding showering; - has difficulty
- rigid, uncoordinated movements.	standing in line, pushing or intentionally killing a child; - not sitting for a long time, shake; - refuses to bathe or to be clipped.
Sensory motor skills	
- are born after primary sensory systems begin to stabilize, usually between 5 and 7 years.	

2. Materials and Methods

The research took place at Kindergarten no. 33 Bacău between October 2017 and May 2018. The group of subjects in the research was represented by pre-school children aged between 3 years and 6 months and 4 years and 4 months. The number of subjects in the research was 14 children. Of these, 3 children are girls, and the remaining 11 are boys.

Analyzing the literature, we started the study with the following assumptions:

1. It is assumed that an early evaluation that identifies sensory-motor development issues as well as specific intervention can substantially improve the development of preschoolers.

2. Pre-school age is presumed to be very important for sensory-motor development in preventing physical and sensory impairments.

For the research activity, the basic material conditions were composed of: balls, circles, sensory tunnel, banks, trampoline, mattresses, brushes with different asperities.

Evaluation methods

In order to determine the specific peculiarities of age and gender, the

sensory-motor potential characteristic of the pre-school period, as well as the orientation of the future intervention, we used the following measurement and evaluation methods:

a. The Oseretsky-Guillmann test, quoted by Lozinca, I. and Mark, V., 2005, carries out a general motricity test. The test focused on the essential behaviors of motorism under its four aspects: speed - force - coordination - resistance, on the coordinates: dynamic hand coordination, general dynamic coordination, equilibrium, rapidity, spatial orientation.

b. The Sensory Profile (interpreted by Cermak, S., 1991) - used for the purpose of assessing tactile, motor, visual, auditory and olfactory sensory levels.

Research objectives:

- development of the vestibular system;
- proprioceptive system development;
- developing the tactile system;
- improving static coordination of lower limbs;
- improving static hand coordination;
- Increasing movement speed and simultaneity of movements.

To achieve the objectives, individual and group sensory stimuli were used as intervention methods, using specialized sensory therapy equipment and child-directed interventions. Strategies have been applied to improve sensory modulation, self-control, sensory perception, discrimination, motor disorders and tactile sensory hypersensitivity (brush technique for tactile desensibilisation)

3. Results

At initial taste, out of the 14 subjects, 8 showed normal development and 6 had a delay in development. As a result of kinetotherapeutic intervention, through sensory stimulation, in 5 children showed considerable improvements reaching the age of normal development specific to their vines, and one subject remained with development below -3 months 9 (chart no. 1, 2). At the same time, after the intervention, improvements were noticed.

Table 1

The relationship between the initial and final diagnosis of the test Oseretsky – Guillmann

No. Crt.	Name and surname	Sex	Initial test	Final test
1.	A. D-D.	M	Normal	Normal
2.	A. D-G.	M	Lightweight motor delays	
3.	C.S	M	Lightweight motor delays	
4.	C.M.G	M	Lightweight motor delays	
5.	C.Y.I	M	Lightweight motor delays	
6.	C.A.	M	Lightweight motor delays	
7.	C.F.E	M	Normal	Normal
8.	C.V.P.	M	Normal	Normal
9.	G.A.G.	M	Normal	Normal
10.	G.A.I.	F	Normal	Normal
11.	M.D.M.	M	Normal	Normal
12.	P.M.	M	Lightweight motor delays	
13.	T.I.T.	F	Normal	Normal
14.	Z.R.M.	F	Normal	Normal

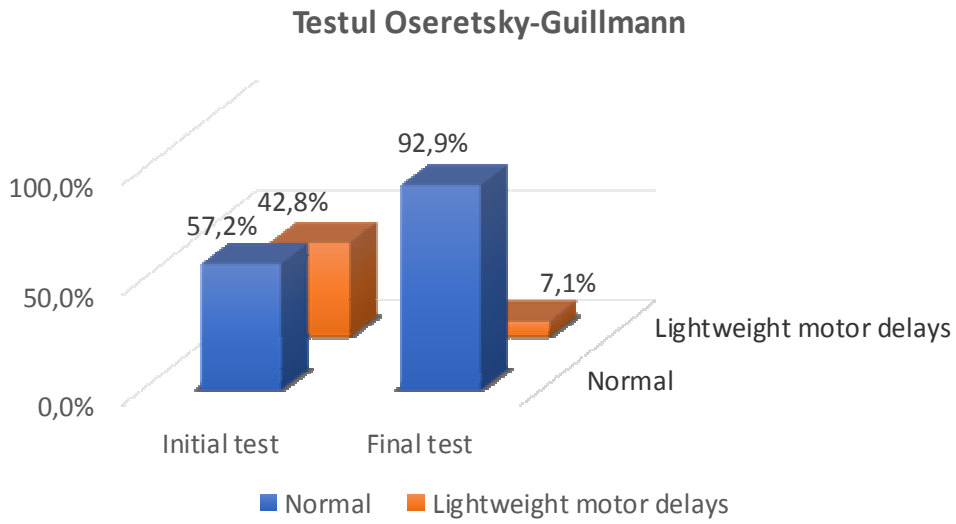

Chart 1 - *The relationship between initial and final evaluation (Testul Oseretsky-Guillmann)*

Values obtained by each subject in the sensory profile Table 2

Crt. No.	**1.**	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**	**11.**	**12.**	**13.**	**14.**
Name	A. D-D.	A. D-G.	C. S.	C. M-G.	C. Y-I.	C. A.	C. F-E.	C. V-P.	G. A-G.	G. A-I.	M. D-M.	P. M.	T. I-T.	Z. R-M.
Touch	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Motion	39	39	39	39	39	39	39	39	39	39	39	39	39	39
To see	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Hearing	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Taste and smell	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Level of activity	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Feeding	22	22	22	22	22	22	22	22	22	22	22	22	22	22
Organisation	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Sleep	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Socio-emoțional	18	18	18	18	18	18	18	18	18	18	18	18	18	18

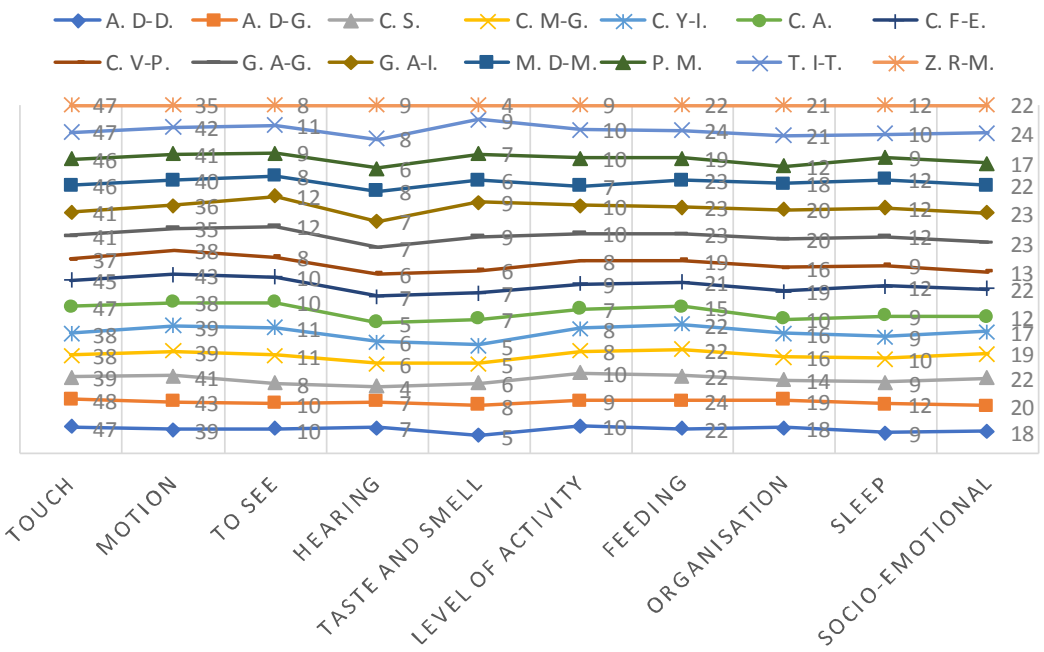

Chart 2 - *Dynamics of results or sensory profile*

4. Conclusions

The following conclusions are drawn from the study:

- By analyzing the first assumption that an early evaluation that identifies sensory-motor development issues as well as specific intervention can substantially improve the development of preschoolers, it is confirmed. The second hypothesis that pre-school age is very important for sensory-motor development in preventing physical and sensory impairment is confirmed. During the implementation of the intervention, visible improvements were observed and recorded. The sooner you intervene, the better the chances of recovery.
- Unfortunately, society is increasingly focusing on the development of academic skills and intellectual development, and less on the building of the sensory-motor base, which is necessary for the development of academic levels.

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