

ELEMENTS OF SOMATIC-FUNCTIONAL REEDUCATION OF CHILDREN WITH VISUAL IMPAIRMENT THROUGH MOTION GAMES

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ABSTRACT

In terms of somatic-functional development, lack of vision does not directly cause disturbances, but the trend towards sedentaryism and knowledge of the environment through predominant tactile kinesthetic information are responsible for the occurrence of physical deficiencies and delayed motor development. These lead to the inevitable slowdown in motor, psychological and intellectual development. This study is outlined as referring to a need to prevent, compensate and complex therapy of the somatic-functional disabilities of the visually impaired schoolchild, by carrying out complex and appropriate assessments with continuity in the development and application of school curricula of physical culture, with a specificity in the somatic-functional reeducation of the visually impaired pupil, using sport-specific means adapted to the educational pupils' scholar program. The study was conducted at the School for the Deficiencies of View no. Austrului 33, Bucharest, sector 2, on a group of 27 subjects enrolled in Gymnasium group V-VIII during January 2008 - June 2009. As a research method, I used the pedagogical experiment using initial and final measurements of a test battery. In this paper I present the applied motion games during the educational process, on the basis of the individual study with the permanent character of the appropriate bibliography. In the physical education and sports adapted lesson motion games can be considered the easiest and most appropriate form to capture and motivate the child and to develop abilities in empathy with its playful side with eloquent results in the somatic-functional development of children with vision deficit.

KEYWORDS: *Visual impairment; Somatic-functional; Reeducation; Motion games; Children;*

INTRODUCTION

It is known that the entire manifestation of the human being has as a permanent and fundamental structural component the physical movement, in all its forms, more or less evolved, analytical or synthetic, innate or acquired.

Body activities - multiple, varied, diversified - must develop and form, prevent, compensate, and correct dysfunctions where living, work and activity conditions fail to maintain the balance of human personality.

In terms of physical development, lack of vision does not directly cause disturbances, but the tendency towards sedentary and knowledge of the environment through predominant tactile kinesthetic information are responsible for the occurrence of physical deficiencies and delayed motor development.

The lack of motricity of children in their first years of life has a number of negative repercussions. Developmental deficits are manifested at the muscular and bone level, giving an atrophic aspect (thin limbs, narrow chest). Low motility is that which leads to the appearance of postural deficiencies or physical deficiencies such as: head and neck bent forward or lateral, fallen shoulders, column deviations, often cyphosis or scoliosis,

round back, clogged chest, flexed knees, flat foot. Body attitude will also be affected by tilting the torso forward, maintaining flexed knees (as a result of a walking trend across the sole in order to get as much support as possible [1].

The tendency to abandon the motor activity generally associated with said physical deficiencies leads to the occurrence of said physical deficiencies leading to the occurrence of disorders in the circulatory and respiratory systems.

All of these associated issues will result in low exercise capacity compared to normal children or people of the same age. Some studies highlight the fact that there is an inversely proportionate relationship between the degree of impairment of vision and the level of fitness of the individual. That is why the role of physical education is decisive in terms of the development of strength, resistance, reaction speed, coordination, conditionality for socio-professional integration of the blind.

The situation of the blind child is characterized by establishing relations with the external environment through palpation, taste and smell, with the help of other senses: hearing, tact, taste, smell. These conditions lead to the inevitable slowdown in mental and intellectual development.

Lack of vision can cause a strong imbalance in psychic activity, automatism structure, and social integration of the person. The visual receiver is at the same time a factor of information and interface of social relations. Its dysfunctions prevent knowledge of the physical image of one's own person, and make it impossible to use imitation as a form of social learning. The unobserved child, lacking experience, will not explore and exploit the environment by coarse and fine motoring. As far as information possibilities are concerned, the blind cannot make a visual inventory of all the elements necessary for daily work. Between mental processes, memory has a special development due to its intense demand.

Visually impaired children use offset memory, supporting environmental awareness and adapting to change. Representations, as a result of perceptual difficulties, are characterized by saturation in tactile-kinesthetic information. Thus, the hand becomes the "right eye" of the blind, and the "left eye" ear, developing the tactile sensation to the finest of stereogenicity, and the auditory sense as a perfect diapason [4].

Visually impaired children cannot use words like: size, shape, position, distance, these words do not have the same meaning for them as for the seers; the word distance, for example, will mean for a blind person the tactile and muscular sensation he or she experiences in stretching the arm to an object, or the number of steps made towards an object, or the time it takes to reach the object, or the tangible impression it produces hear the sound of a distant word.

The vision gives space to the elaborate, while the touch provides its own elements in elaborating it, which develops intelligence, creativity, imagination to the blind.

Hearing sensations naturally evoke the representation of the position occupied by an object in space: forward, backward, lateral, farther or closer to length, height, or depth; the sound is perceived by the ear, in particular ways, which, gradually through experience, become representations of different positions of space. Also, the tone, vibrations and inflections of the voice of the surrounding people give the blind to the subject, attitude and state of mind.

2. Logistics

The study was conducted at the School for the Deficiencies of View no. Austrului 33, Bucharest, sector 2, on a group of 27 subjects enrolled in Gymnasium group V-VIII during January 2008 - June 2009. As a research method, I used the

pedagogical experiment using initial and final measurements of a test battery.

The sample of subjects was selected from the V-VIII groups of the previously presented school unit with a diagnosis of amblyopia and associated illnesses as closely as possible (I note that not all pupils are enrolled at the same age because of the background, social situation or affections associated, as well as their degree of capacity). Thus, a group of 27 subjects eligible to carry out a preliminary research under objective measurable conditions, subjects with whom we conducted the experimental research of the thesis, was highlighted. The case reports are carried out as a result of a research that involves an activity carried out within the team, together with the teaching and medical team, from September 2008 to June 2009.

In this paper I present only the specific data of those motric measurable initial and final conditions, and the applied motion games that I create during the educational process, on the basis of the individual study with the permanent character of the appropriate bibliography. In the physical education and sports adapted lesson motion games can be considered the easiest and most appropriate form to capture and motivate the child and to develop abilities in empathy with its playful side with eloquent results in the somatic-functional development of children with vision deficit [5].

The characterization of visually impaired children is just a point of reference in understanding the consequences that the deficiency has on the development of those concerned.

1. Concerns

In terms of physical development, lack of vision does not directly causes disturbances, but the tendency towards sedentary care often accompanies the deficiency is responsible for them. Thus reduced motorcycle leads to:

- postural deficits
- head and neck inclined anterior or laterally
- shoulders brought or fallen
- scoliosis, lordosis, round back
- clogged chest
- flexed knees
- flat or inverse leg
- respiratory deficit
- circulatory deficit.

In terms of global motricity, the following are recorded:

- low level of coordination capabilities
- arrhythmic movements
- manual dexterity deficiency
- balance disorders

- Rigged, hesitant, slow
- reduced mobility amplitudes
- Reduced muscle elasticity
- low level of force development
- lack of safety and precision on the move
- lack of orientation in space
- low development of body pattern.

The repercussions presented above are primarily the result of an inappropriate process and impulse, obviously requiring early intervention to prevent and prevent these deficits and deficiencies.

Exercise through play can be considered the easiest and most appropriate form to capture and motivate the child in empathy with his playful side.

The game contributes to solving a number of tasks, for example developing physical fitness or moving skills, while helping to educate a moral and willful quality [2].

The organization of games in which children gain skills, learn and adopt the right body posture, develop their sense of balance, coordination, mobility, strength, reaction speed and reflexive response, compensate for deficiencies, combat obesity, cardio-respiratory function, development of tactile-kinesthetic perception and memory, to manifest and develop the creative initiative, to educate collectively, the spirit of comradeship, fair play, organization, observance of rules, empathic spirit and self-confidence, sense of utility, belonging and inclusion.

The teacher must know how to orient himself in choosing the game, stopping only on those who can exert a positive influence from a physical, moral and hygienic point of view, avoiding those with undesirable effects related to: superstition, unnatural movements and non-high-risk, high-risk accidents, games where cruelty or anti-social feelings can manifest [3].

Once the pedagogical task has been established, it is necessary to take into account other factors such as: the game team, the game, age, health, venue, gaming teams, arbitration, explanation and demonstration of the game, discipline and game rules, dosing, results, rewards, or prizes.

The research tasks:

- Consultation of the bibliographic material in Romanian and foreign literature on specific physical therapy and adapted physical education - social phenomena, training methodologies, the means of learning and training in ambliop children of school age

- Deepening the knowledge of morpho-functional and psychomotor particularities of ambliopic pupils, grades I-VIII

- Finalizing the research methods, setting the test periods, ways of processing and capitalizing on the obtained results

- Starting the research program, organizational preparation, selection of the research groups, subjects integrated in the experiment, grades I-VIII, and pupils of the School for Visually Impaired Schools no.64

- Achievement of the anthropometric, functional and motor measurements in the initial and final tests, the statistical-mathematical processing and the drawing of conclusions drawn from the experiment on the subjects under investigation

- Data processing and analysis of the data in order to detach the conclusions of the experiment on the research aspects

- Formulation of conclusions and drafting of the paper.

MATERIAL AND METHOD

Motricity tests: initial 2006/final 2008:

Nr crt	NUM E	FC/20 genuflexiuni	Mobilitate flexie Sol	Echilibrul 60 sec	Abdomen 30 sec	Flotări 30 sec	Extensii 30 sec	Orientare / coordonare puncte
1	RMG	17	2	32	30	12	27	2
2	IM	24	-2	5	10	10	10	2
3	AF	16	0	10	17	0	25	3
4	TM	16	-10	nesatisfăcător	30	30	27	2
5	BC	22	0	15	30	30	30	2
6	BCI	24	-12	Nesatisfăcător	7	0	5	2
7	VP	20	-7	Nesatisfăcător	20	10	14	4
8	DL	22	-10	12	10	0	16	2
9	MB	19	-2	Nesatisfăcător	30	3	16	2
10	GAA	19	-2	Nesatisfăcător	22	0	28	2
11	DMG	20	0	10	23	4	15	2
12	AG	22	0	15	23	10	12	2
13	DG	22	-1	nesatisfăcător	10	0	4	2
14	BMF	20	-2	nesatisfăcător	30	12	10	3
15	MRC	17	0	5	27	3	17	2
16	HB	17	0	10	29	10	12	2
17	AA	20	-2	Nesatisfăcător	20	9	10	3
18	SB	13	2	Nesatisfăcător	7	0	0	3
19	PM	17	0	30	29	14	22	3
20	PG	22	0	30	30	30	30	2
21	AC	20	2	15	22	17	12	7
22	CV	23	0	12	12	13	10	5
23	TC	19	0	10	20	0	7	5
24	SL	19	-7	Nesatisfăcător	10	0	7	2
25	PD	16	-3	Nesatisfăcător	23	12	10	3
26	BVN	16	-2	Nesatisfăcător	20	10	12	4
27	MM	16	-5	Nesatisfăcător	23	12	10	2

Nr crt	NUM E	FC/20 genuflexiuni	Mobilitate flexie Sol	Echilibrul 60 sec	Abdomene 30 sec	Flotări 30 sec	Extensii 30 sec	Oriinare / coordonare puncte
1	RMG	17	2	49	30	20	30	3
2	IM	23	0	7	27	10	20	3
3	AF	17	0	21	30	4	30	3
4	TM	16	-1	23	30	30	27	4
5	BC	21	0	60	30	30	30	7
6	BCI	24	-2	Nesatisfăcător	20	10	10	4
7	VP	20	-2	Nesatisfăcător	30	15	20	6
8	DL	21	-4	32	12	7	20	6
9	MB	18	0	10	30	11	22	4
10	GAA	18	1	Nesatisfăcător	22	0	28	2
11	DMG	20	2	31	30	12	17	4
12	AG	21	0	50	28	12	12	4
13	DG	22	1	5	15	3	7	6
14	BMF	19	0	27	30	21	20	4
15	MRC	17	2	20	30	7	19	4
16	HB	17	0	47	30	17	23	3
17	AA	19	0	20	27	9	21	3
18	SB	15	4	Nesatisfăcător	10	0	5	3
19	PM	20	0	60	30	27	27	3
20	PG	24	4	60	30	30	30	2
21	AC	20	5	30	30	17	12	7
22	CV	24	0	34	29	13	19	7
23	TC	17	0	39	22	0	13	5
24	SL	17	0	10	21	2	10	3
25	PD	16	2	37	23	12	10	3
26	BVN	17	-2	27	30	10	30	5
27	MM	20	-4	52	30	15	27	5

The inductive hypothesis of research is outlined as referring to a necessity for the prevention, compensation and complex therapy of the physical and motor development disabilities of the amblyopic pupil, by carrying out complex and appropriate evaluations, with continuity in the development and application of school curricula physical culture, specific in the psycho-socio-cultural integration of the visually impaired individual, using specific means of sporting games adapted to the ambulatory pupils' physical therapy.

In the proposed evaluation system, there are 2 categories of options: the teacher's options and the student's options. The National Evaluation System provides for "minimum ranges equivalent to the sufficient grade and grade 5" and recommends that for the other grades and grades teachers have to set their own scoring scales. Eurofit is the result of a European program that sought to unify evidence for assessing the youth's motor capacity in this area. It is a "simple and practical test battery, based on reliable and valid tests, with an excellent cost-effectiveness ratio and thus meeting the requirements expressed by the Council of Europe's Sport Development Committee. The aim is to achieve a closer union among members and to facilitate their social, cultural and scientific progress "(Handbook for Eurofit Tests). The Eurofit test battery includes: identification data, anthropometric measurements, driving tests. In view of the above, as well as the lack of school evaluation programs in the field of physical culture of visual impairments, we tried to apply tailored tests and evaluations to the

specifics of the blind and ambulatory pupils in primary and gymnasium.

Examples of games with a technical-tactical content in sports games with corrective valences for visual impaired children games found in the book "Movement Games for Visual Impaired Children's" - by Adina Geambașu, a book that is part of the Compilation of Motric Activities Formative - Series of Movement Games - University Card, Bucharest - 2005:

- "Turkish looks for the ball"
- "In the cottages"
- "The Striking Strike Ball"
- "The worker and the worker"
- "The Traveling Book"
- "Creeping Train"
- "Rolled Ball"
- "Who is wrong"
- "Mountain Trail"
- "Match action"
- "Basket Ball"
- "Twine".

Here a few of the applied games, in which children give all their participation [6]

1.1. Motion game's name: "Dwarf and giant":

- Corrective and educational aspects: educating a correct body attitude, correcting cifosis, muscular tonus, educating perception and touch-kinesthetic sense.
- Materials: strips or strings, 2 baskets, small balls.
- Description: players are divided into two equal number teams, and placed on two rows at a starting line, each with one ball in hand; at the teacher's first beacon, the first player in each row with a hand on the bottom of the string, starts in the dwarf to the basket, where he leaves the ball and turns his hand over the top of the string; in turn, touches the next teammate on his shoulder.
- Methodical instructions: win the team that places all the balls in the basket and aligns to the starting line; players are not allowed to start until they are touched by the previous teammate; punish those who do not properly run the dwarf or walk on the peaks.

Variants: it can be done with other variants of walking, or rare basket and ball, just by bypassing a chair.

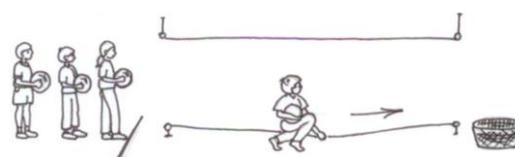


Fig. 1. (a) the starting action

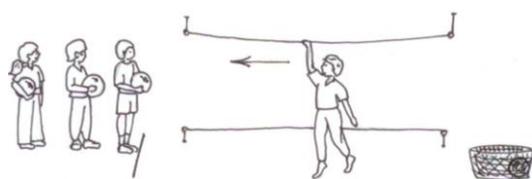


Fig. 1. (b) the return action

1.2. Motion game's name "Duck and hunters":

- Corrective and educational aspects: Muscle tonus, competitive spirit development, audio-space orientation.
- Materials: string ball, trumpet or whistle, carpet room, mattresses.
- Description: players (hunters) form a large open circle, each hunter 2 meters away from each other; in the center another player (duck) with a trumpet or whistle; the hunters try to catch the duck by rolling the ball fast from one to the other, and the duck keeps guard from the trumpet to announce the hunts where it is.
- Methodical indications: when the duck is touched, it changes with the hunter who has correctly rolled the ball.

Variant: it is possible to play with several ducks, provided they have a beep (trumpets / whistles) in order not to strike between them.

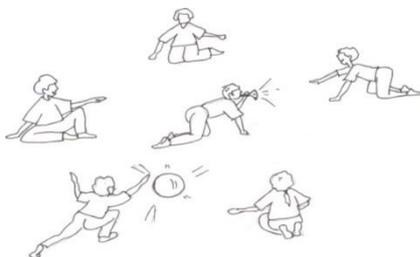


Fig. 2. Game on action position

Acknowledgements:

Storing values. presentation of quantitative and qualitative results of subjects from initial and final testing:

FRECVENȚA CARDIACĂ / 20 GENOFLEXIUNI								
TESTARE	Media aritmetică	Mediana	Abaterea standard	Abaterea medie	Dispersia	Amplitudinea	Coefficientul variației	Diferența procentuală la medii
Inițial	19,19	19,00	2,80	2,34	8,16	11,00	14,89	
Final	19,26	19,00	2,63	2,19	6,89	9,00	13,63	0,36%

TESTUL STUDENT	IPOTEZE		CONSTANTE			Valori CALCULATE	
	H ₀ m ₁ = m ₂	H ₁ m ₁ ≠ m ₂	α	df	t critic	t	P
			0,05	26	2,06	0,27	0,787

CONCLUZIE: P > 0,05. Statistic, rezultatele diferă semnificativ. Se respinge ipoteza nulă.

MOBILITATE FLEXIE INDEX-SOL								
TESTARE	Media aritmetică	Mediana	Abaterea standard	Abaterea medie	Dispersia	Amplitudinea	Coefficientul variației	Diferența procentuală la medii
Inițial	-2,26	-1,00	3,80	2,83	14,43	14,00	-168,14	
Final	0,30	0,00	2,13	1,51	4,52	9,00	717,87	113,27%

TESTUL STUDENT	IPOTEZE		CONSTANTE			Valori CALCULATE	
	H ₀ m ₁ = m ₂	H ₁ m ₁ ≠ m ₂	α	df	t critic	t	P
			0,05	26	2,06	4,71	0,000

CONCLUZIE: P <= 0,05. Statistic, rezultatele diferă semnificativ. Se respinge ipoteza nulă.

ECHILIBRU 60 SECUDE								
TESTARE	Media aritmetică	Mediana	Abaterea standard	Abaterea medie	Dispersia	Amplitudinea	Coefficientul variației	Diferența procentuală la medii
Inițial	9,74	5,00	8,51	6,23	72,43	28,00	87,37	
Final	28,41	27,00	18,94	15,68	358,56	56,00	66,66	191,68%

TESTUL STUDENT	IPOTEZE		CONSTANTE			Valori CALCULATE	
	H ₀ m ₁ = m ₂	H ₁ m ₁ ≠ m ₂	α	df	t critic	t	P
			0,05	26	2,06	6,87	0,000

CONCLUZIE: P <= 0,05. Statistic, rezultatele diferă semnificativ. Se respinge ipoteza nulă.

ABDOMENE 30 SECUDE								
TESTARE	Media aritmetică	Mediana	Abaterea standard	Abaterea medie	Dispersia	Amplitudinea	Coefficientul variației	Diferența procentuală la medii
Inițial	20,89	22,00	7,95	6,49	63,26	23,00	38,07	
Final	26,15	30,00	5,98	4,75	35,75	20,00	22,87	25,18%

TESTUL STUDENT	IPOTEZE		CONSTANTE			Valori CALCULATE	
	H ₀ m ₁ = m ₂	H ₁ m ₁ ≠ m ₂	α	df	t critic	t	P
			0,05	26	2,06	4,99	0,000

CONCLUZIE: P <= 0,05. Statistic, rezultatele diferă semnificativ. Se respinge ipoteza nulă.

FLOTĂRI 30 SECUDE								
TESTARE	Media aritmetică	Mediana	Abaterea standard	Abaterea medie	Dispersia	Amplitudinea	Coefficientul variației	Diferența procentuală la medii
Inițial	9,30	10,00	9,22	6,86	85,06	30,00	99,21	
Final	12,74	12,00	9,08	7,03	82,51	30,00	71,29	36,99%

TESTUL STUDENT	IPOTEZE		CONSTANTE			Valori CALCULATE	
	H ₀ m ₁ = m ₂	H ₁ m ₁ ≠ m ₂	α	df	t critic	t	P
			0,05	26	2,06	4,55	0,000

CONCLUZIE: P <= 0,05. Statistic, rezultatele diferă semnificativ. Se respinge ipoteza nulă.

EXTENSII 30 SECUDE								
TESTARE	Media aritmetică	Mediana	Abaterea standard	Abaterea medie	Dispersia	Amplitudinea	Coefficientul variației	Diferența procentuală la medii
Inițial	14,74	12,00	8,37	6,73	70,05	30,00	56,78	
Final	19,96	20,00	7,86	6,34	61,81	25,00	39,38	35,41%

TESTUL STUDENT	IPOTEZE		CONSTANTE			Valori CALCULATE	
	H ₀ m ₁ = m ₂	H ₁ m ₁ ≠ m ₂	α	df	t critic	t	P
			0,05	26	2,06	5,39	0,000

CONCLUZIE: P <= 0,05. Statistic, rezultatele diferă semnificativ. Se respinge ipoteza nulă.

ORIENTARE/ COORDONARE								
TESTARE	Media aritmetică	Mediana	Abateră a standard	Abateră a medie	Dispersia	Amplitudinea	Coefficient variație	Diferența procentuală a mediilor
Inițial	2,78	2,00	1,25	0,92	1,56	5,00	45,02	
Final	4,19	4,00	1,49	1,21	2,23	5,00	35,71	50,72%

TESTUL STUDENT	IPOTEZE		CONSTANTE			Valori CALCULATE	
	H ₀	H ₁	α	df	t critic	t	P
	m ₁ = m ₂	m ₁ ≠ m ₂	0,05	26	2,06	5,25	0,000

CONCLUZIE P <= 0.05. Statistic, rezultatele diferă semnificativ. Se respinge ipoteza nulă.

From the study of the specialized literature, we can uncover the basic idea that bodily activities - multiple, varied, diversified - must develop and form, prevent, compensate and correct dysfunctions where living conditions, work and activity fail to preserve the balance of human personality [7].

The studied theoretical context highlights the permanent need for movement, as an end in itself and for itself, with effects on health, harmonious body development, maintenance and correction, requiring appropriate means.

Also, the fact that the social environment is the most influential factor in the life of the individual and especially in the development of his personality is also tinted.

Following the study of the literature, the following can be concluded:

- The beneficial complex effects of exercise are obvious, associated to a great extent with sensory integration; these activities provide excellent conditions for awareness of one's own body, spatial orientation, coordination, perceptual-motor skills, while achieving the physical condition of the subjects.
- Once the established pedagogical task has been taken into account, other factors have been taken into account such as: the game team, the game, age, health, venue, gaming teams, arbitration, explanation and demonstration of the game, discipline and rules of the game, dosing, setting results, rewarding or awarding.
- Visual impaired children are receptive to all physical education and physical therapy activities, especially in the form of movement as a game element, appealing to their playful side and inclinations and the development of the touch-kinesthetic factors of perception of the outer world.
- School is the main factor in intellectual, physical and physical education of pupils, both through general and professional education, as well as through sports, in physical education lessons and especially in motion activities.
- Adapted Physical Education and Physical Therapy, as a means of developing biopsychomotor

skills of visual impaired children, the movement - the most common physiological act, has major educational value, and effective compensatory and integrative at both social and individual level.

- In the lessons, the organization of games in which the visual impaired children gain skills, learn and adopt the correct body posture, develop their sense of balance, coordination, mobility, strength, reaction speed and reflexive response, compensation obesity, obesity, cardio-respiratory function, development of tactile-kinesthetic perception and memory, to express and develop the creative initiative, to educate the collective feeling, the comradely spirit, the fair play, the organization, observance of rules, empathetic spirit and self-confidence, sense of utility, belonging and inclusion.
- The environment is an important factor in the development of human personality, the main problem being to ensure the educational character of the situations in the family, school, professional, sports and informal group.
- Human resources are, however, the most important in delivering a special quality education, bringing together specialists with various skills: the coordinator of the adapted program, the physical education teacher, the physical therapist, the coach, the psychologist, the doctor, the nurse, the maintenance staff, etc. Given that an increased number of children are integrated into public schools, physical education teacher and coach will have additional responsibilities to participate in a professional manner, along with other members of the interdisciplinary team.
- The need for complex educational programs with a multidisciplinary approach and the accumulation of real data adapted to the educational needs of bio-psycho-motor development of visual impaired children and their social integration according to the updated European norms is highlighted.

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