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Dog-assisted therapy, an alternative modality for the development of motor skills in children with disabilities (Note II)

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Abstract
Background. In the paper we tried to present a method of animal-assisted therapy for a group of 3-6 year old preschoolers. The preliminary methodological study aimed at the development of animal-assisted activities and, on the other hand, aspects of the activity, to exercise demonstrations. The aim is to present the advantages offered by dog-assisted therapy on the development of motor skills.
Aims. We assume that through dog-assisted therapy we might obtain significant results from the point of view of general motor skills in children with disabilities.
Methods. We studied research aimed at highlighting the influence of the therapy dog on children in training including recovery activities. We also drew inspiration from our own experience with therapy dog West. The sessions took place in a kindergarten group of 6 to 10 people.
Results. Most research criteria were found to be easy to use and were able to monitor changes in children's behavior. The children uniformly showed improvements in behavior being more motivated towards the activity in the presence of the dog; attention also increased in the activities carried out in the presence of the dog.
Conclusions. The studied research and personal observations are extremely promising. It would be worth testing and evaluating the effectiveness of therapy dogs on motor activities carried out by children. For this, the present study provides good foundations both in terms of thematics and the application of observational aspects.
Keywords: animal-assisted therapy, development of motor skills, development of at tention, stimulation of motivation.

Introduction

Based on the definition of the International non-profit organization Delta Society animal-assisted therapy is " a goal- oriented intervention during which the set therapeutic goal is achieved by involving an animal trained for this purpose in the therapeutic process" (Chandler, 2012; Kruger & Serpell, 2010).

Animal-assisted therapy (AAT) is a structured therapeutic intervention with the deliberate inclusion of an animal in a therapeutic treatment plan. Generally, AAT involves a licensed therapist guiding interactions between a patient and an animal to achieve specific goals (Chandler, 2012); (1).

The dog as a therapeutic agent appeared by chance in the case of a therapy session of the American psychiatrist Bori s Levinson. He observed the interaction between the strong internalized child and his dog to whom the boy opened up very quickly, and to whom he began to tell stories.

There is more evidence of the positive effects of dogs on children (Levinson, 1962; Levinson, 1964; Levinson, 1965; Levinson, 1970; Mallon, 1994; Reichert, 1994; Hansen et al., 1999; Hergovich et al., 2002; Lieber, 2002; Anderson & Olson, 2006).

The dog provides major support in the development of movement: the development of large movements, fine movements, the development of spatial orientation, body schema, body perception, speech, communication, improving attention, concentration, precision, developing memory, developing social skills, developing self-image and self-awareness, developing a sense of rhythm, developing and maintaining a healthy and conscious lifestyle, developing problem-solving skills, increasing tolerance for failure, behavior and behavior problems, attention deficit hyperactivity disorder, foreign language, expanding vocabulary, awakening interest, deepening

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knowledge etc.

In the case of children with poor development of motor skills, inhibition and frustration appear, therefore these children avoid and refuse motor activities. If the dog appears during the activities, motivation appears, the children perform the tasks willingly, smiling, forgetting about their problems. The dog accepts children as they are, with or without defects, it behaves the same with everything, it makes no difference.

It is widely accepted that children need physical activities for their healthy development, and it is proven that movement and action are essential for the harmonious development of cognitive functions such as language, sensation and perception, as well as some intellectual skills (Bunker, 1991).

It also plays a big role in behavior control the early motor coordination activities. This is how the child experiences that he is the master of his own actions, that he is ahead he can summon things and control his own movement. Animals are often used to develop greater self-control and a sense of responsibility (Serpell, 2000).

It has been shown to facilitate cognitive and social development (Olds et al., 1994; Sollerhed et al., 2008; Stork & Sanders, 2008), and there appears to be a strong relationship between the development of gross motor skills and language (Rarick, 1980). As children develop more sophisticated motor skills, their capacity for language improves as well.

When dog and child meet there is inevitably a motor component to their interaction. When we think of the image of a child next to a dog we can imagine a series of movements in their way of playing. Inevitably, the idea of detecting the positive effects brought by therapy dogs in the development of motor skills in children arises.

The predictability of school performance can be most easily estimated through perceptual and motor skills. These are the areas where fortunately therapy dogs can be used predominantly, they can be included in motor activities and even provide added value to these activities.

Hypothesis

We assume that through dog-assisted therapy we obtain significant results from the point of view of general motor skills in children with disabilities.

Material and methods

Research protocol

a) Period and place of the research

The research was carried out in Oradea, in an inclusive education center.

The research was carried out over nine months in the period 2022-2023.

There are two testing times, pre-test and post-test.

In the pre-test stage, the Portage developmental test is applied, with particular attention to motor behavior developmental areas in order to specify the developmental level of the sample of subjects before starting the therapy dog-assisted therapy intervention. The pretest is of particular importance, the other assessments refer to these measurements.

During the research stage, group therapy assisted by a therapy dog is applied once a week.

In the post-test stage, the Portage developmental test is applied, with particular attention to the areas of motor behavior development in order to specify the developmental level of the sample of subjects upon completion of the therapy dog-assisted therapy intervention.

Quantitative data analysis methods will be used to establish and represent the percentage effects of music therapy interventions in the group of subjects.

Qualitative data analysis will be used to demonstrate other gains after completion of therapy dog-assisted therapy sessions in areas other than those measured and evaluated by the Portage test scale for the area of motor behavior.

b) Subjects and groups

The experimental group consisted of 29 children of preschool age, between 3-6 years old, all with delays in motor development.

c) Applied tests

The psychopedagogical experiment took place in the following three stages:

- pre-test stage
- formative experiment stage
- post-test stage

In the pre-test and post-test stages, the Portage test was applied. The assessment tool, the Portage test, takes into account children's chronological age, which is biological age, and children's mental age, or the child's developmental age at the time of assessment. The assessment domains tested, quantified and presented in this research were: language development, cognitive behavior development and socialization.

Portage is an internationally used early intervention programme which includes a guide with an assessment scale and a method of working in a team (Shearer & Shearer, 1972; Bluma et al., 1976; Blunden, 1982; Cameron, 1982; Tiilikka & Hautamak,i 1989). The Portage assessment is a criterion-referenced, hierarchically organized area and level (age) description of skills for living and adaptation, the items being divided into 5 areas, i.e., socialization, language, self-help, cognitive, and motor, and the items are levelled according to assumed time of emergence. Altogether there are 580 items. The assessment can be made by any trained professional, not only by psychologists. The Portage assessment scale provides a detailed description of developmental achievements. The Portage-system has been adapted into Finnish (Tiilikka & Hautamaki, 1986).

Motor Scale of the Portage Test

The motor area mainly comprises the coordinated gross and fine movements of the muscles of the body. Those movements that involve the large muscles of the body are generally called gross movements. Examples of gross movements include sitting, crawling, walking, running, or throwing a ball. Fine motor activities, which are those activities that involve the fine muscles of the body, sometimes constitute improvements in gross motor skills. For example, the child's incidental hits to a small

toy slowly change into a directed grasp with the whole hand and eventually become a bi-digital pincer grasp (between the index finger and the thumb). This bi-digital grasp is an indispensable fine motor task, it is the basis for learning to use a pencil, to overlap cubes, to complete pictures and to cut with scissors.

Balance and body posture give the child support for movement and for understanding the environment in which he lives. Without stability and without the ability to maintain a certain position, the child has difficulty learning new movements or understanding the connection between other objects and itself. The child moves to discover the objects and the relationships between the objects around him. These movements of discovery and contact with objects through grasping, holding and handling - support the understanding of the nature of the object itself.

Although some fine motor skills depend on some gross motor skills, many gross and fine motor skills develop simultaneously.

These are physical tasks that require varying degrees of muscle control and hand-eye coordination.

d) Statistical processing

The obtained data were processed using the statistical package SPSS, versions 22.00.

In the first step, the distribution of the data was checked with the Kolmogorov-Smirnov test. The results obtained in this test indicate that the data distribution is symmetrical both in pretest (z=.864; p=.445>.05) and in the posttest (z=.663; p=.445>.05). Thus to compare the results and test the working hypothesis in the second stage of data processing, parametric methods will be used, namely the t test of comparison on intragroup samples. The results obtained are presented in the Results sections. For the easier illustration of the data, figures were created, made in the Excel program.

Results

To test the hypothesis of the study, the averages obtained during the pretest-posttest assessment of motor behavior and respectively the score for the obtained development coefficient were taken into account. Therse were compared using the intragroup comparison t-test. The results are summarized in table I.

The data in Table I indicate that the study's hypothesis is confirmed. The averages obtained during the evaluation of the posttest stage are significantly higher than those obtained during the pretest stage (t=-6.084, p<0.001). At the pretest assessment, the averages were between m_{min}=1.26 and m_{max}=4.62; at the posttest assessment, m_{min}=1.78 and m_{max}=4.27.

The score for the development coefficient also improved from one test to another (t=-8.036, p<0.001, with higher averages at the posttest stage evaluation. In conclusion, the activities program carried out contributed to improving the motor skills of the participants in to study.

Discussion

Dealing with the theme of applying therapy assisted by a therapy dog to a group of special education preschoolers and presenting the obtained results can open new perspectives in educating children with special educational needs.

The subchapter presenting other research conducted in the field of dog-assisted therapy offers realistic scientific chances for research success.

The research itself is applied over a period of nine months.

Investigating the effect of dog-assisted therapy means much more than measuring positive effects, rating them, and turning them into statistical data. Although, this research manages to prove statistically that dog-assisted therapy applied to a group of special education preschoolers produces positive effects in the development of children's motor skills, however, there are other factors that are not measurable. You can't measure the smile of the children waiting for the sessions to start. You can't measure the moments when a child with a fear of dogs wants to be the one to lead the dog. The moment when a child with a fear of closed spaces crosses the tunnel with the dog cannot be measured, just as the moment when a hyperactive child waits for his turn, just for the joy of participating in the activity with the therapy dog, cannot be measured. This research provided many such moments that are not covered in the chapter dedicated to data processing.

In this research motor activities for children with disabilities were carried out with the help of the therapy dog. Thus, a series of exercises were carried out for the development of gross motor skills, balance, fine motor skills, eye-motor skills, spatial orientation, body scheme. The activities carried out and applied were: from support on palms and knees, walking through the tunnel, helped by the dog, walking on the gym bench following the dog, learning, together with the dog, the body segments, stringing various objects on the dog's leash, using the vest the dog with pockets that helps children in the

Table I

Paired-sample comparison t-test results regarding participants' motor skills in pretest and posttest.

	Indicator	Mean	Std. Dev	t	df	Sig. (2-tailed)	95% Confidence Interval of the Difference	
							Lower	Upper
Pair 1	Evaluation pretest	2.689	.946	-6.084	27	.000	-.727	-.361
	Evaluation posttest	3.233	1.043					
Pair 2	Coefficient of development	54.636	18.838	-8.036	27	.000	-8.241	-4.888
	Coefficient of development	61.200	20.032					

development of fine motor skills (opening the zipper, closing capsules, buttons).

Also, in addition to these, it was observed that children had a higher level of motivation in the presence of the dog, they were less anxious, participated with interest and enthusiasm in activities and their self-confidence has increased.

Conclusions

1. Given the fact that the sample of subjects is represented by a group of children with special educational requirements, the emergence and consolidation of strongly significant results needs a long intervention.
2. Partial analyses show significant differences in the development of motor behavior of the sample of subjects, but these significant differences - calculated over a period of nine months - are not statistically representative.
3. The final results confirm the research hypotheses.
4. The results obtained as can be seen from the table above were statistically significant, observing an increase in general motor skills.
5. A significant increase was achieved on the side of gross, fine, oculo-motor, spatial orientation and body schema.
6. The research hypotheses, as well as other positive results obtained, are also confirmed by the intervention supervisor

Conflict of interests

Nothing to declare.

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