

## The Importance of Continuous Multimodal Therapy in Children with ADHD (Attention Deficit-Hyperactivity Disorder) - A Case Study

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### Abstract

In this century, the environmental factors influence our health excessively; that is why we become more agitated, always in a hurry, and more tired. We live without knowing it in a century of speed, and the children who come after us present abilities that are more and more evolved. We hear more and more around us parents who complain about their children's hard to control behavior; kindergarten and primary school teachers who are exasperated by the children's lack of focus and control. The consequences are the punishment of the child, and sometimes even his/her exclusion from the group. Very few people know that this kind of child cannot control his/her behavior, encountering difficulties regarding the focus of his/her attention on one single activity, even if related to play. On these aspects we can act with the help of multimodal therapy, so that we can help the child overcome the behavioral and psycho-motor obstacles encountered during growth. The aim of multimodal therapy is to act multilaterally on the subject so that at the end, the result to be favorable both for the child and parents, and for the specialists.

**Key words:** *multimodal therapy, attention deficit, hyperactivity disorder*

### Rezumat

În secolul în care trăim, factorii de mediu ne influențează excesiv starea de sănătate, de aceea devenim mai agitați, grăbiți și, totodată obosiți. Trăim fără să ne dăm seama în secolul vitezei, iar copiii care vin din urma noastră prezintă abilități din ce în ce mai evolute. Auzim din ce în ce mai des în jurul nostru părinți care se plâng de comportamentul greu de stăpânit al copiilor, educatori și învățători exasperați de elevi neastâmpărați și neatenți. Consecințele sunt pedepsirea copilului și uneori chiar excluderea lui din colectivitate. Puțini știu că un astfel de copil nu își poate controla comportamentul și întâmpină dificultăți în ceea ce privește concentrarea atenției asupra unei singure activități, fie ea chiar legată de joacă. Asupra acestor aspecte se poate acționa cu ajutorul terapiei multimodale, astfel încât să venim în ajutorul copilului pentru ca obstacolele comportamentale și psihomotrice pe care le întâmpină în perioada de creștere să poată fi străbătute de acesta mult mai ușor. Scopul terapiei multimodale este acela de a acționa multilateral asupra subiectului astfel încât la sfârșitul perioadei, rezultatul să fie unul favorabil atât pentru copil și părinți, cât și pentru specialiști.

**Cuvinte cheie:** *terapii multimodale, deficit de atenție, tulburare hiperkineti*

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## Introduction

The attention deficit-hyperactivity disorder is a bio-psycho-social disorder, characterized by lack of attention, hyperactivity and impulsiveness. Due to certain genetic, biological and environmental factors, and it determines a certain bio-psycho-neurological profile (Mark Cavitt).

It is a disorder that affects 8% of the population, and is encountered mostly in boys. It debuts in the first years of life, but in 70% of the cases, it also persists at an adult age (Mary Fowler).

The main characteristics of the hyperactive disorder are: attention deficit, impulsiveness and hyperactivity, these are the most common and most intense in children with this disorder, in comparison to other children of the same age [5].

One of the reasons for choosing this topic was that the attention deficit-hyperactivity disorder represents a current problem among children today, which can be approached from multiple perspectives, a problem to which our field can bring its contribution to finding a remedy for improving the excessive behaviors characterizing this syndrome, by blending physical therapy with other therapies, such as behavior therapy, speech therapy, music therapy, art therapy, aromatherapy, and pharmacotherapy.

A very important role in the development of children with attention deficit-hyperactivity disorder is played by the parents' involvement in the optimal organization of tasks they have to perform so that there is a constant balance in their lives during their growth period, doing everything they can to remedy the symptoms, and to help these children be socially integrated in every environment they get in contact with (kindergarten, school, friends).

We believe this topic to be an interdisciplinary approach, and new for our field, as the physical therapy collaborates with other forms of therapy.

## Material and methods

We started this research from the following hypothesis: presumably, by interrupting the multimodal therapy, for various reasons (belonging to the subject), the results obtained throughout this therapy can be preserved, or they can represent a stable basis, which one can use to stabilize the psycho-motor baggage in children with attention deficit-hyperactivity disorder.

This research was conducted at the "Assessment, Prophylaxis, and Rehabilitation Center for Children with Disabilities" of Galati. Here, under the careful guidance of psycho-pedagogue Daniela Turcu, we observed and collaborated to the progress made by this child during a multimodal therapy program, conducted over a period of 1 year and 2 months. After that, the child gave up the therapy, during which he was supervised and assessed.

The subject, F.C.M., was a little boy of 6 years and 4 months, at the time when he arrived at the center to be treated. After the psychological and psycho-motor evaluations, we confirmed the diagnosis of attention deficit-hyperactivity disorder.

For the assessment of the subject, we used the following tests:

- *Hyperactivity assessment questionnaire*
- *Opposing and aggressive behavior assessment questionnaire*
- *Parents' questionnaire regarding problematic situations in the family*
- *The Ozeretsky-Guilman test*
- *The speech therapy test*
- *The color Progressive Matrices Test*

### The Initial testing

It took place on October 15, 2010, when the child was brought to the psychologist, and after the assessments, the following results were recorded:

- At the Questionnaire for assessing the manifestations of hyperactivity, the subject received a score of 84 out of 114;
- At the Questionnaire assessing behavioral manifestations type and aggressive opponent, the score was 53 points out of 90;
- At the Questionnaire addressed to the parents about problematical situations, the subject gathered 52 points from a maximum of 144;
- Following the Ozeretsky-Guilman test, the motric age of the subject revealed to be 5 years and 8 months, compared with chronological age at the time of 6 years and 4 months; after evaluating speech therapy following diagnoses were observed: functional sensory polymorphic dyslalia and inversions/omissions of phonemes;
- Color Progressive Matrices test showed us that the children's IQ is 100 points.

#### Development of the research

We would like to mention the fact that this research was possible due to personal contributions in the rehabilitation program of the child with attention to deficit-hyperactivity disorder, according to personal experience, collaboration with interdisciplinary specialists, and with the parents who got involved in this program.

After establishing the diagnosis, together with the center's psychologist, we elaborated the therapeutic plan for the subject.

The results recorded after the assessment were made public to the parents, who were in charge of certain demands that needed to be respected inside the family environment, and put into practice, because their contribution was very important for the therapy.

An important step in the therapy, and not only, is the parents' awareness and acceptance of the child's diagnosis of attention deficit-hyperactivity disorder.

When the parents are informed that their own child presents *symptoms* leading to this diagnosis, they become reticent, refusing this truth. After the parents are given a psychological and psycho-motor education regarding the behavioral aspects that appear in such children and their evolution in time, they are offered the possibility to analyze this perspective, by filling the *Hyperactivity assessment questionnaire, the Opposing and aggressive behavior assessment questionnaire, and the Parents' Questionnaire regarding problematic situations in the family.*

The next step was for the parents to identify the behaviors that are characteristic to this disorder, in their child, from a list of behaviors found in the above mentioned questionnaires.

After the assessment, the calendar of therapy sessions was as follows:

#### A. November – December 2010

In this period, the child had 6 hours of therapy per week, divided into 3 sessions. Beside these hours of therapy, the child had 3 hours of Speech Therapy. After this period, the child had a break from therapy, because he was in his winter vacation.

#### B. January – July 2011

In January, when he returned to therapy, the parents said that they would like their child to have only 6 hours of therapy, so following this decision, the speech therapy program was introduced in the actual rehabilitation program, dividing the time between sessions and speech improvement.

In August, during the treatment period, there was another break, when the child did not come to therapy, for various reasons given by his parents.

C. September – December 2011

In the fall of 2011, the child entered 1st grade, and as a result of the reduced time he now had, we had to shorten again the therapy sessions, remaining with only 2 sessions per week. The therapy continued until December.

D. January – May 2012

In this period, with the parents' agreement, we continued to evaluate the child, to observe his evolution after the therapy, and to test his level regarding the knowledge acquired during our program.

The means and methods used to achieve our goals were:

- Physical Therapy
  - general relaxation,
  - development of the fine motor skills,
  - control of breathing, of emotions, and of impulsive reactions,
  - development of psycho-motor skills (movement simultaneity, general and segmental coordination, dynamic and static balance).
- Speech therapy intervention
  - control of the phono-articulating apparatus (imitation of onomatopoeia, tongue twisters, pronunciation exercises, spelling, identifying the letters in the syllables).
- Diminishing the hyperactivity
  - reducing the agitation, and integration into a state of calm and peace (lying on the mattress,

- in the supine position, the child had to be in this position between 30 seconds and 5 minutes, without moving his hands, legs, or talking).

- Music therapy;
- Play therapy;
- Art therapy.

**Results and Discussions**

Next, we will present and analyze the evolution of the results recorded by the subject F.C.M, at the age of 8, at the end of the study.

After applying the Hyperactivity assessment questionnaire, we could observe that there was an improvement in the child's behavior throughout the therapy, but when he gave up the therapeutic program, his impulsive and hyperactive behavior showed signs of an increase in intensity.

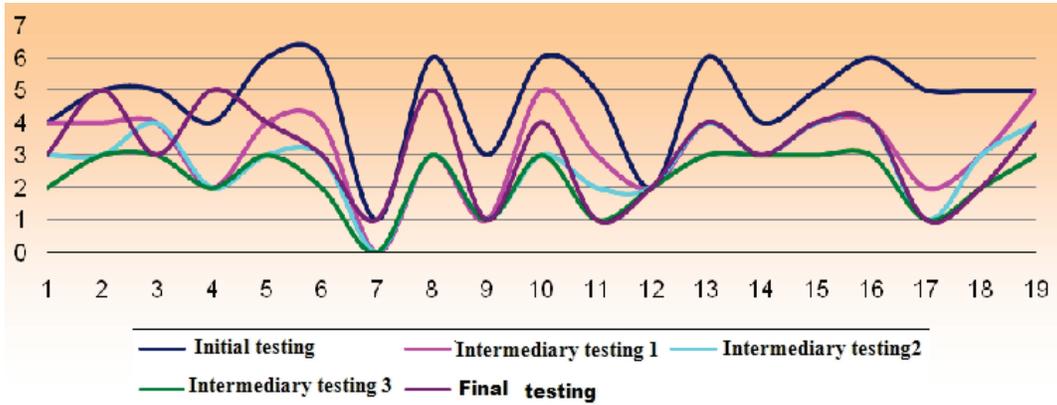
Figures 2 and 4 show us the data presented in the table, the value curve being slightly more visible regarding the child's evolution, but also his stagnation after interrupting the treatment.

Figure 3 shows us the total points for each item, throughout the whole research, and we can see that the lowest scores were recorded for the items 13, 16, 19 with a total of 21 points, at the polar opposite being the items 7, 9, 12, 17, with a total - in the order of their presentation - of 2, 7, and 10 points, respectively.

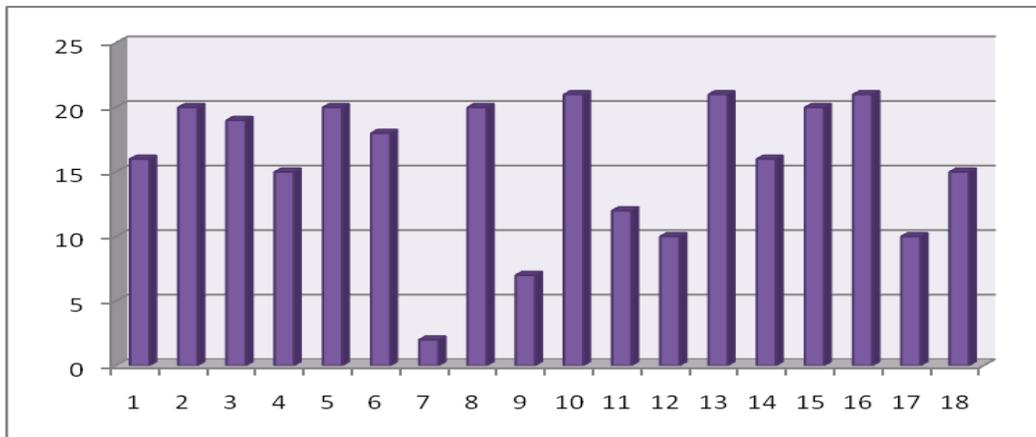
**Table I.** Results recorded at the initial evaluation of the subject

Applied test	Hyperactivity assessment questionnaire	Opposing and aggressive behavior assessment questionnaire	Parents' questionnaire regarding problematic situations in the family	The Ozeretsky-Guilman test	The speech therapy test	The color Progressive Matrices Test
Rec. res.	87 points out of a total 114	53 points out of a total 90	52 points out of a total 144	C.A.*-6 years and 4 months M.A.** - 5 years and 8 months	-functional sensory polymorphic dyslalia - inversions/ omissions of phonemes	IQ - 100 points

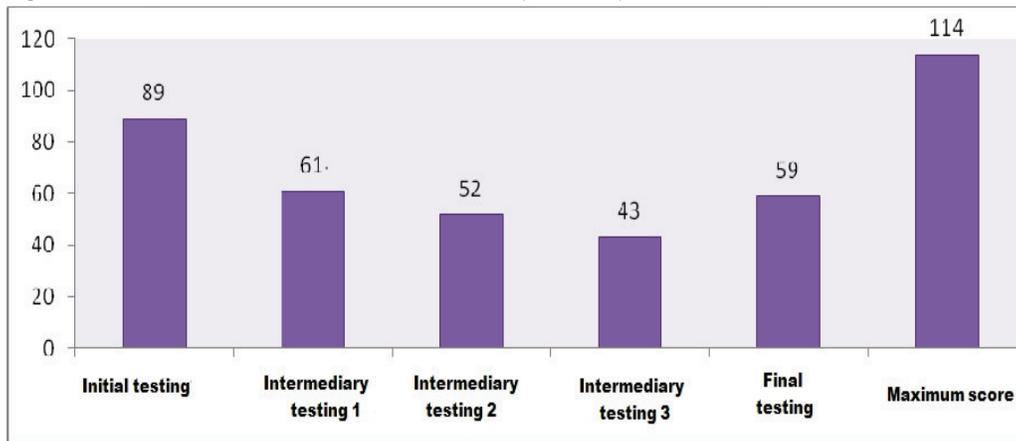
\* - chronological age; \*\* - motor age



**Figure 1.** Hyperactivity assessment questionnaire - scores obtained for each item of the questionnaire during the evaluation that took place



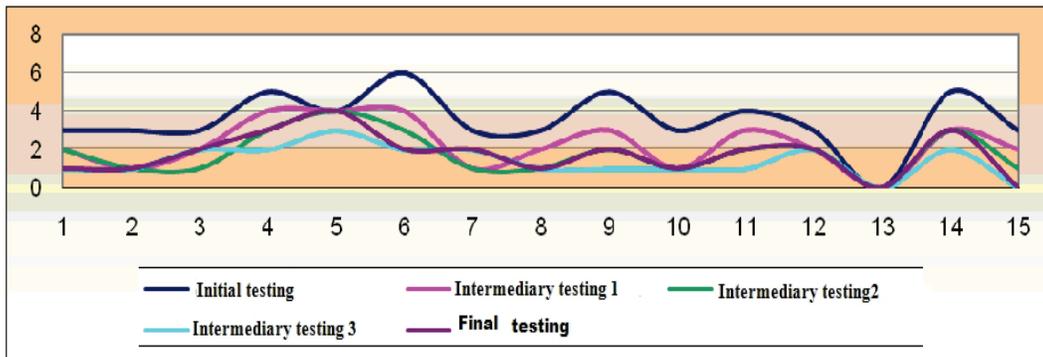
**Figure 2.** Total points for each item recorded for the Hyperactivity assessment questionnaire



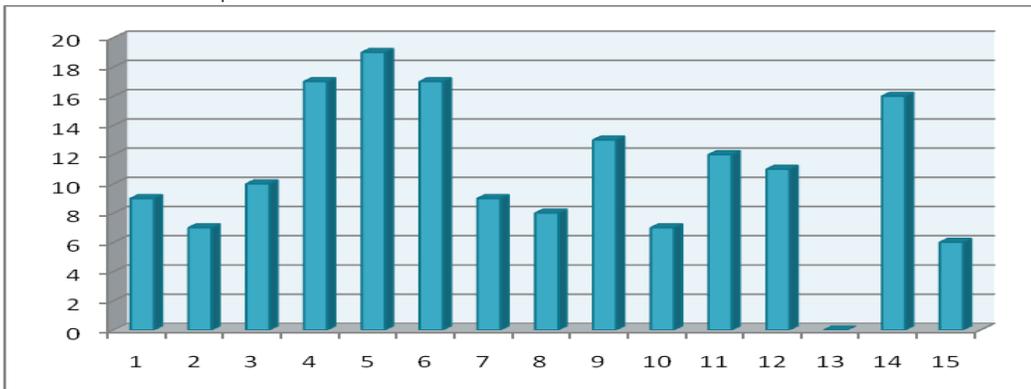
**Figure 3.** Hyperactivity assessment questionnaire - Total points recorded for each testing

Regarding the next questionnaire, we can observe that the subject tends towards an opposing, but less aggressive behavior. We can also say that the intensity of the behaviors has decreased, which is visible between the two assessments, whereas for the other assessments, we can say that the opposing behavior has maintained between close values, with small fluctuations.

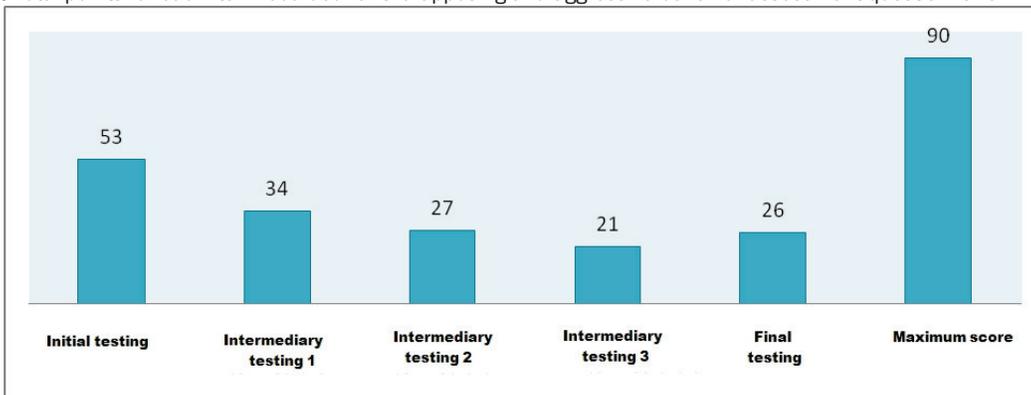
With this questionnaire we can observe what form of character is more pronounced; the items 2, 10, 15 have a low score, which means that the level of aggressive behavior is reduced, while the items 4, 5, 6 have a high score, indicating the child's opposing behavior. This data can be observed in Figure 5.



**Figure 4.** Opposing and aggressive behavior assessment questionnaire - scores obtained for each item of the questionnaire during the evaluation that took place



**Figure 5.** Total points for each item recorded for the Opposing and aggressive behavior assessment questionnaire



**Figure 6.** Opposing and aggressive behavior assessment questionnaire - Total points recorded for each testing

Figure 7 indicates the maximum points recorded after each assessment, considering also the maximum score of the questionnaire. We can understand the fact that therapy is very important and represents a helping tool with regards to the attention deficit-hyperactivity disorder. After the assessment we observed that there are only two major problem situations, of the ones presented in the table above. *The parents' questionnaire* shows

us the intensity of the existing family problems, and we can observe that the situations, in which the behavior is most problematic, are when the subject plays with other children, or when he is in the car.

Figure 9 shows that there are situations that do not become problematic, such as when he watches television, or when the father is at home, but also extremely problematic situations, such as the ones presented in items 2 and 14.

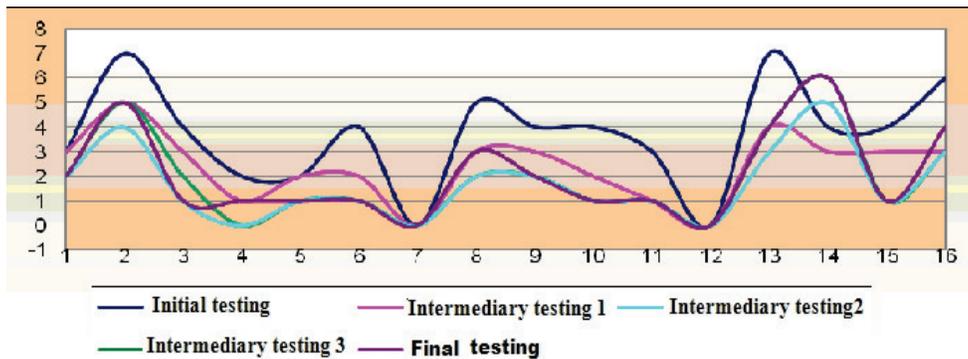


Figure 7. Parents' Questionnaire regarding problematic situations in the family - scores obtained for each item of the questionnaire during the evaluation that took place

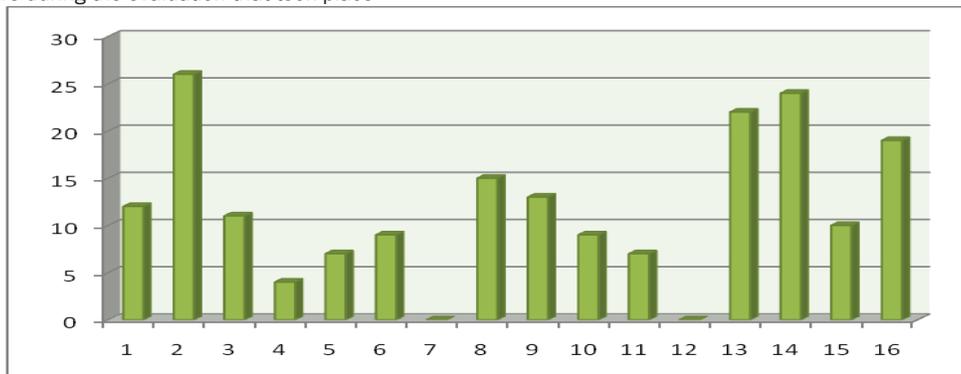


Figure 8. Total points for each item recorded for the Parents' questionnaire regarding problematic situations in the family

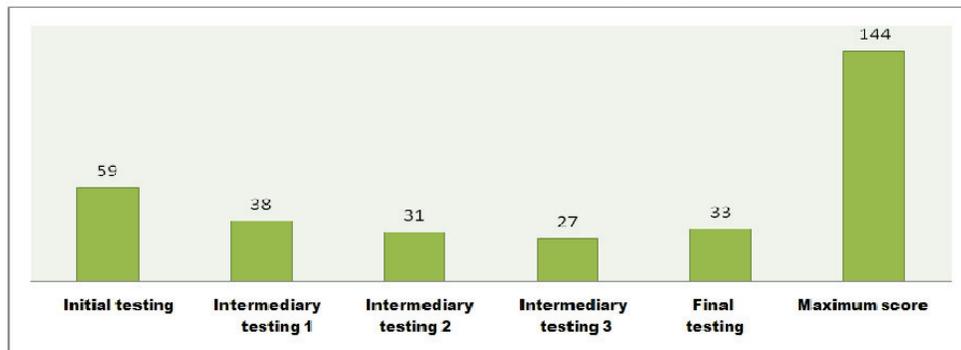


Figure 9. Parents' Questionnaire regarding problematic situations in the family - Total points recorded for each testing

Figure 10 lets us observe that the best score was recorded during the intermediary assessment 2, with only 27 points.

Using the *Ozeretsky-Guilman test* we observed the motor behaviors the child had before and after the application of the therapeutic treatment, and also after stopping it.

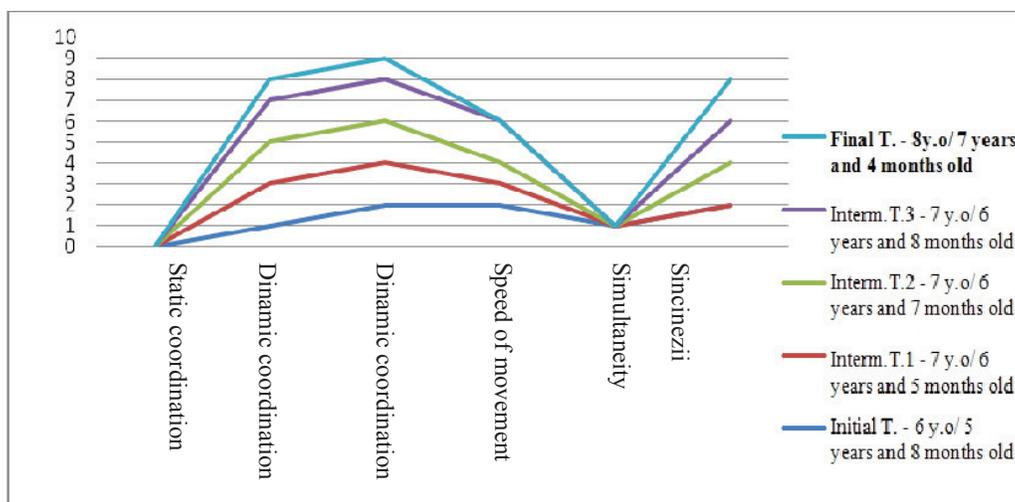
After the psycho-motor assessment, presented in (table II), we could observe that the subject showed a slight motor retardation. Even though these children are hyperactive, this does not mean that their most important psycho-motor behaviors are developed with age. The *static coordination*

component is noticeable, with a score of 0 in all of the 5 assessments. We can also observe the fact that the difference between the chronological age and the motor age is of 7 months in the initial assessment and of 5 months in the intermediary 1 testing, which represents a slight assimilation of information, from a motor point of view, after the application of the therapeutic program.

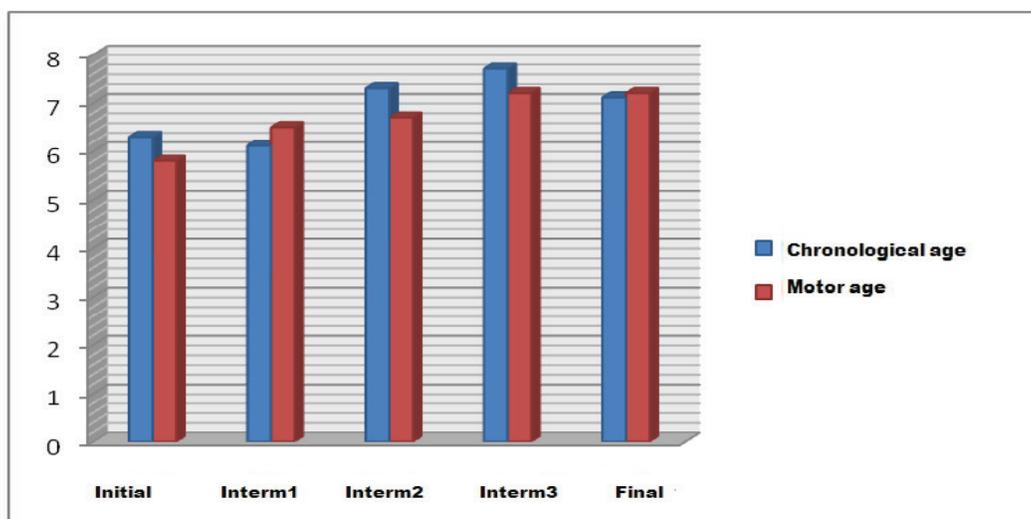
The *Ozeretsky-Guilman test* indicates also the fluctuations recorded in the assessments conducted over a period of one year and eight months. The motor components show us where there are motor unbalances.

**Table II.** The Ozeretsky-Guilman test - the difference between chronological age and motor age

Testing period	Chronological age	Motor age
Initial testing 6 years old - 10/15/2010	6 years and 3 months	5 years and 8 months
Intermediary testing 1-7 years old - 5/15/2011	6 years and 10 months	6 years and 5 months
Intermediary testing 2-7 years old - 10/13/2011	7 years and 3 months	6 years and 7 months
Intermediary testing 3-7 years old - 1/25/2012	7 years and 7 months	7 years and 2 months
Final testing 8 years old - 4/30/2012	7 years and 10 months	7 years and 4 months



**Figure 10.** The Ozeretsky-Guilman test



**Figure 11.** The Ozeretsky-Guilman test - the difference between the chronological age and the motor age

### Conclusions

The analysis of the results presented above was done over the course of 14 months of treatment and 6 months of observation. In creating the multimodal therapy program, we took into account the age of the child, his adaptability, his mental, motor, and emotional potential. The therapeutic treatment aimed to diminish his hyperactivity, lack of attention and impulsiveness has gone well, the treatment goals being achieved.

After the intermediary and final assessments, we observed that there are improvements in the child's behavior, the inadequate behaviors being reduced, and the subject adopting a correct attitude in the social environment. The boy has become much more receptive to the situations presented to him, especially during therapy, being interested in the new activities conducted to improve his behavior.

The charts presented above allow us to observe certain synopes in the child's evolution, throughout the development of the research, this being explained by the fact he interrupted the treatment on December 1, 2011.

We can also observe the results recorded during the period in which the child was treated, showing an improvement in his behavior within the family and social environment, this being observed also in the charts presenting the results from the parents' questionnaires.

After conducting this research, we discovered that it is very important to continue applying the multimodal therapy because the results previously recorded (when the child was in therapy) do not preserve the informational and behavioral level we had obtained, and do not represent a solid base for the accumulation of new psycho-motor information corresponding to each stage of child development. So, the continuation of therapy represents a continuous process of adapting the therapy to the age characteristics traversed by the child.

A basic conclusion that can be drawn is that specialists can control only the child's behavior inside the therapy, and for a development and formation of social behavior, the parents' support is needed to apply the received indications for the psycho-behavioral, psycho-affective, and psycho-emotional instability, the child registering behavioral

fluctuations according to the environment where he is (social, family, school, therapy).

The control the parents had outside the therapy has lead to a complete accomplishment of the short-term goals, and a partial accomplishment of the long-term goals, because the treatment was interrupted, but, nevertheless, the relation between parents and specialists can represent a solution for achieving long-term goals.

Thus, our initial hypothesis, *"Presumably, by interrupting the multimodal therapy, for various reasons (belonging to the subject), the results obtained throughout this therapy can be preserved, or they can represent a stable basis, which one can use to stabilize the psycho-motor baggage in children with attention deficit-hyperactivity disorder"* is confirmed.

This disorder tends to be more and more frequent, representing a challenge for specialists, this therapeutic approach being new in our field. This study

can be a starting point for contouring working principles, means and methods of intervention specifically for this disorder.

## References

1. Barkley, R.A.(1998) *Attention Deficit Hyperactivity Disorder: A handbook for diagnosis and treatment*, ediția a II-a, Guildford Press, New York;
2. Bîlbîie V. (2008) *O interesantă cazuistică logopedică și terapia ei*, Editura Pim, Iași;
3. Dobrea A., (2008) *Diagnostic și intervenție la copii, Semestru II*, Universitatea Babeș-Bolyai, Facultatea de Psihologie și Științe ale Educației;
4. Dobrescu I. (coord.) (2007) *ADHD - Ghid pentru părinți*, Editura Total Publishing, București;
5. Döpfner M., Schürmann S., Frölich J. (2002) *Program terapeutic pentru copii cu problem comportamentale de tip hiperchinetice și opozante*, Editura RTS, Cluj-Napoca;
6. Green CH., Chee K. (2009) *Să înțelegem ADHD, deficitul de atenție însoțit de tulburare hiperkinetică*, Editura Aramis, București;
7. Hechtman L. (2000) *Evaluarea și diagnosticul deficitului de atenție însoțit de hiperkinezie, Clinici psihiatrice pentru copii și adolescenți din America de Nord*, 9:481-9;
8. Romila A., (coord.) (2003), *Manual de diagnostic și statistică a tulburărilor mentale - DSM-IV-TR*, Ediția a 4-a, Editura Asociației Psihiatrilor Liberi din România, București.