

The VML Method

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Motor speech deficit

Childhood Apraxia of Speech (CAS) is a motor speech disorder that affects the technical ability to plan and program speech. This is primarily due to a lack of sensory input and/or a deficit in motor planning as opposed to tone abnormality, lack of muscle power or lack of motivation. A child with CAS wants and tries to speak but doesn't know how to do it. It's like standing in the middle of a dark circular room with hundreds of doors and trying to find the right door to open.

CAS's major characteristics are inconsistency in sound production, oral motor deficits, poor verbal imitation, and poor prosody. CAS can appear within different syndromes such as autism, intellectual disability, cerebral palsy or be the major deficit itself.

VML (Verbal Motor Learning)

The VML method was developed in Israel, in Hebrew, through clinical experiences with children with CAS. VML is a system designed to treat CAS. This system has two sides; the organized, algorithmic side, and the flexible, "water shape" side. The organized side of the VML is a structured, integrative, multi-dimensional side that involves:

- A multi-dimensional speech evaluation using a specific *evaluation form* and protocol;
- A multi-dimensional analysis of the child's situation using a specific *analysis form*;
- Identifying the key objectives for speech treatment and the formation of a treatment plan with a specific *treatment plan form*
- Use of over a hundred Manual techniques in treatment
- Applied motor learning principles in different level and aspects of the method.

The flexible side of the system enables adaptation of the system to the specific needs of the child in terms of:

- Treatment objectives
- Techniques
- Type of therapist



- Place of therapy
- Amount of sessions during the week and their length
- Different levels for every objective based on dynamic needs
- Adaptation of the system to the cultural preferences of the child
- Adaptation of the system to the cognitive, lingual and communication needs of the child.

As CAS is considered a motor planning problem, the method uses principles of motor learning. , Language and communication goals also play a key role in the evaluation, analysis and treatment plan. Each vowel, consonant, syllable and word has special techniques that assist the child in learning to imitate the desired sound. The VML strives to build a system and team based approach to treat the speech problem rather than using only the intervention done in the therapy sessions.

Crucial to the VML is analysing and altering the treatment procedure on a regular basis where necessary. No technique or basic assumption is free of critique, and re-evaluation of the primary causes is fundamental to the program. Subsequently, this enables the treatment method to be appropriately altered and enhanced based on new data and better, more holistic understanding of the child's deficits.

While originally based on the Hebrew language, over the last few years several English speaking children were treated with VML in English. The VML method was translated into English and is now being practiced in Melbourne, Australia.

Recently, the VML method was introduced in New York and Poland, whereby training will commence in such countries later in 2014.

VML history

VML development started in 1995 through treatment of a 5 year-old child with autism who did not speak; however could imitate numerous syllables. The child had severe expressive and receptive aphasia and was being treated by a team of new tutors using an ABA (Applied Behavior Analysis) treatment schedule. After a year of intensive VML treatment the child learned how to imitate all the syllables and started pronouncing words. The leader of this group of tutors was Dr. Elad Vashdi who analyzed the treatments and came up with hands-on techniques to help teach motor speech. Over the years these techniques became an organized system to treat children with CAS called VML. Since then Dr. Vashdi has



accumulated further experience with hundreds of children, built a theoretical basis for the VML method, conducted research in the field of CAS, and delivered 18 training programs in Israel and in Melbourne, Australia.

Target population

In the early years VML was used to treat children with autism and CAS. In the past few years it has been used more frequently with children suffering a variety of syndromes, as well as pure CAS of varying severity levels (from children who have no verbal ability at all and who have severe oral motor apraxia, to children with minor deficits in speech.) 62% of the children evaluated at Yael Center for speech were diagnosed with ASD, 13.5 % with CAS only and 24.5% with other syndromes such as Cerebral Palsy, Down syndrome, Speech delay, and severe developmental delay.

The treatment age ranges from 1.5 to 27 years of age. The average age is 4:11 years. The treatment delivery and goals differ according to the child's age. VML can also serve adults with Apraxia of Speech (AOS). AOS, unlike CAS, is an acquired syndrome due to trauma to the brain at an older age.

In addition to helping children with CAS, VML can also help children with other speech delays (mainly of motor origin). There is no age restriction in treatment using VML, although the treatment plan would vary according to the patient's age.

Treatment procedure

Every treatment begins with a thorough evaluation that determines if the speech treatment is necessary and can be useful, what the causes for the current developmental status are, and what is the right way to perform the treatment (including treatment details, location of treatment, intensity, therapists, attitude, and techniques).

Evaluation reports and treatment plans are produced. The treatment procedure can vary between cases according to parameters such as hours per week (usually ranging from 1-6 hours), numbers of therapists and their professional status (SLP, tutor, parent, teacher, other specialist), and number of goals addressed.

Each treatment plan should be monitored on a weekly basis so adjustments (if needed) can take place as soon as possible.



Every few months a general evaluation takes place to examine the effectiveness of the treatment program.

VML research

In the past two years, VML research procedures started to take place. The professional world is heading towards Evidence Based Practice meaning practitioners will base their practice on proven evidence rather than subjective experience alone. That motion requires intensive research of all therapeutic procedures so most of the practice would be supported by evidence. The VML follows the same path.

The first article was published in International Journal of Child Health and Human Development, Volume 6, Issue 2, 2013, "**Using VML (verbal motor learning) method techniques in treatment of prosody disorder due to childhood apraxia of speech: A case study**".

Another article was published in the book "Disability and Chronic Disease". Five other articles are currently undergoing editing prior to publication, and approximately 5-6 articles are hoped to be written and published each year. Some of them are retrospective and some prospective. Some of the articles deal with theoretical issues.

The second article recently accepted to publication was titled "**The influence of Initial Phoneme Cue technique according to the VML method on word formation with a child who has apraxia of speech and autism – A case study.**"

The research is being done with international cooperation to increase group sizes and cultural influences as well as creating an international practice and research group.



VML services

The basic VML services in Israel comprise the following elements:

1. Day care treatments
2. Short sessions of 1-2 hours weekly
3. Guidance for therapeutic teams
4. Consultations and re-evaluations.

The services are provided in two clinics located in the center and north of Israel, and may also be provided in the child's home.

The international VML services include:

1. Video conference evaluations and treatment by Dr Elad Vashdi.
2. Home based workshops lasting 1-7 days for evaluation, treatment and training, which is provided by Dr Elad Vashdi at the child's home. This type of intervention is set according to family needs, and financial abilities since it varies from case to case.
3. In Melbourne, Australia, there are two clinics that use the VML method, and provide inter-state services around Australia. The clinics are "The Voice within" and "Best start clinic". These clinics work in close cooperation with Yael center in Israel.
4. VML training and workshops are planned this year (2014) in Australia, Romania, England, Poland, Los Angeles and New York (USA).

VML training

In Israel, the VML training is an annual course (October – June), where therapists receive full training.

In Melbourne, the VML training is taking place every year (July-August).

Internationally, the training is divided into two phases; basic and advanced. The basic training (56 hours) is given in one intensive week. The Advanced training (32 hours) is given in 4 intensive days. Both trainings are given by Dr Elad Vashdi.

The cost of the training depends on the place, time, travel costs and amount of participants in the training. We try to make the training financially feasible for all participants worldwide.

The training goal is to train therapists in the most professional way to use the VML method as a whole and make a genuine change to the child's verbal skills. We are building a strong group of therapists worldwide that will use the VML with all its aspects while constantly improving the tool via research and international cooperation.



Graduates of the various courses are welcome to join the " VML International Therapists Association" so they can connect with group members, offer and expand their knowledge, receive professional support and engage in discussion regarding skill development.

The full VML training comprises 3 stages – basic, practical training, and advanced training. The full training includes the following stages:

Time: 56 hours. 7 full days (8 hours per day)

Training Topics: CAS characteristics, physiology of speech, evaluation form, pre-verbal techniques, consonant and vowel production techniques, word production techniques, evaluation analysis and treatment planning, introduction to motor learning principles.

Requirements: 3 written assignments, final exam.

Fee :

Certification: completion of VML stage 1 - basic training, by Yael Center and Dr Elad Vashdi.

Further stages:

Practical training:

Time: 100 hours of distance learning.

Subjects: VML treatment with at least 3 different children for at least 6 months. The training can be done in distance. The student is required to

Requirements: To film 9 therapy sessions where the beginning , middle and end of the final three sessions are evaluated.

Fee :

Certification: completion of VML stage 2 - practical training, by Yael Center and Dr Elad Vashdi.

Advanced training:

Distance learning – 5 modules.

Subjects: Advanced analysis and evaluation, writing treatment plans, motor learning theories, using motor learning principles in treatment.

Requirements: Final exam

Fee :

Certification: completion of VML stage 3 - Advanced training, by Yael Center and Dr Elad Vashdi.

Treatment results

In a wide retrospective study performed between 2006-2013, 89 longitudinal treatments of VML were examined in three different settings: individual professional treatment once a week, home based intervention with VML consultation and day care VML intervention at Yael Center. The following table summarizes the results of the study:

Long term VML intervention

Sub groups	cases	Avg' age	Range	average improve'	basic level	range improve'	Avg' years	range years	Avg' word improv	word basic	Per' age of word improv
Regular treatment	19	6.8	3.83-10.41	47.13	10.80	8.63-96.42	1.97	0.41-5.7	-1.8	4.94	63.15
Day care	10	6.33	4.5-8.5	30.56	17.52	3.86-88.98	0.78	0.25-2	-0.9	4.8	40
Home based	60	6.2	3.08-14.58	23.06	17.76	0-100	1.08	0.08-5.33	-0.95	4.8	43.3
Sum	89	6.46	3.08-14.58	33.58	15.36		1.27		-1.2	4.85	48.8

This table shows the comparison between three groups of VML interventions; 1) regular 1X1 VML treatment at home or clinic, 2) Day care VML treatment of 4 hours per day (with other goals and subjects as well) once a week, and 3) home based treatment when only VML consultant is given without direct professional VML treatments.

Average improvement – percentage of improvement in single syllable imitation. The basic level shows the basic percentage score of single syllable imitation.

Average years – time in therapy.

Ave' word improvement – the scale of the word index is 1-5. 5 = no words, 1= complex words pronunciation. The basic level of most of the subjects was no words at all. 48% could pronounce words at least on the first level of CVCV structure after 1.2 years on average.

The results demonstrate the efficacy of the method in three different treatment settings while addressing severe cases. The treatment onset on average was 6.46 years which is late considering the severity of the cases. However, in one year of treatment half of the children will achieve the word level and will improve their single syllable pronunciation in 33.5%.



Professional Recommendation and Testimonials for the VML

Professional Recommendation written by Elise Swallow, Senior Speech Pathologist and Director of The Voice Within Speech Pathology:

I have been trained and using the VML in therapy with children with motor speech disorders since 2011. The basic training gave me thorough understanding into motor learning principles and the sensory system, and how these can be used to assess and treat speech sound disorders, especially CAS. What may have been even more beneficial was the training into seeing each child as a whole person; incorporating sensory, motor, relationship and motivation techniques into every session to ensure even the most challenging clients can engage in the therapy and reach therapy goals. Following the training the ongoing international support and training supplied by Dr Elad Vashdi and the Yael Centre has been first class. Dr Elad Vashdi is a truly passionate and dedicated clinician and researcher who is passionate and dedicated about seeing every child reach their full potential. Since incorporating the VML in my clinical practice I have used the VML daily to assist children with speech sound disorders and have seen amazing results. Please read the testimonials below from two of these families. I highly encourage all parents, speech pathologists, aides, ABA therapists and teachers to be apart of the upcoming training this July.

Testimonial received on 17th February 2014 from a parent of a child with CAS:

Words cannot express our gratitude for all the work you have done with Hugo. You have taken him from being a virtually non verbal 2 year old to a fully verbal 6 year old. When we first started Hugo's therapy he didn't even have the skills to move his tongue left and right or up and down. Through your use of the VML Method, he now has full use of his tongue and throat muscles. Once he had the fundamental tools in place he was able to produce all the sounds needed to start putting it together learning his blends and sounds. We have been thrilled with Hugo's progress. His confidence has increased enormously since you have given him the tools to communicate with his peers.

Testimonial received on 17th February 2014 from a parent of two children with CAS:

I will never forget my son's first session with Elise because I cried. He was diagnosed with severe verbal dyspraxia at 2 years of age and at 3.5 years with weekly speech therapy he still couldn't get his little mouth to make most sounds. In that first session Elise got my son to make the 'b' sound, and we haven't looked back! There was a time when I really didn't know if I would hear him connect two intelligible words, and now at 5 years old he speaks in full sentences and is age appropriate with his sounds and almost there with his sentence structure. Miraculous is how I describe it to friends, but really Elise has an incredible ability to connect with children and is highly skilled in numerous techniques including the VML Method (a child centered approach that uses physical prompting techniques), which is one of the techniques that worked for my son.

My younger son is also seeing Elise and he is now 3 years old. He absolutely adores Elise and his face lights up when she walks into the room. He is on a different trajectory than my older son as he is making slow and steady progress. He is heading in the right track though and he always works hard for Elise. He has dyspraxia and autism, and I am not sure that someone

else would be able to achieve such a concentrated yet fun session with him week after week.