EXCELLENT BRAIN

INFORMATIONAL DOCUMENT

IN THIS DOCUMENT:

ABOUT EXCELLENT BRAIN

Excellent Brain develops brain training solutions using brain-computer interface and neurofeedback. The program can be easily used individually while at home or with professional assistance. The goal is to provide people with accessible and affordable neurofeedback programs that are easy to use and effective.

EXCELLENT BRAIN
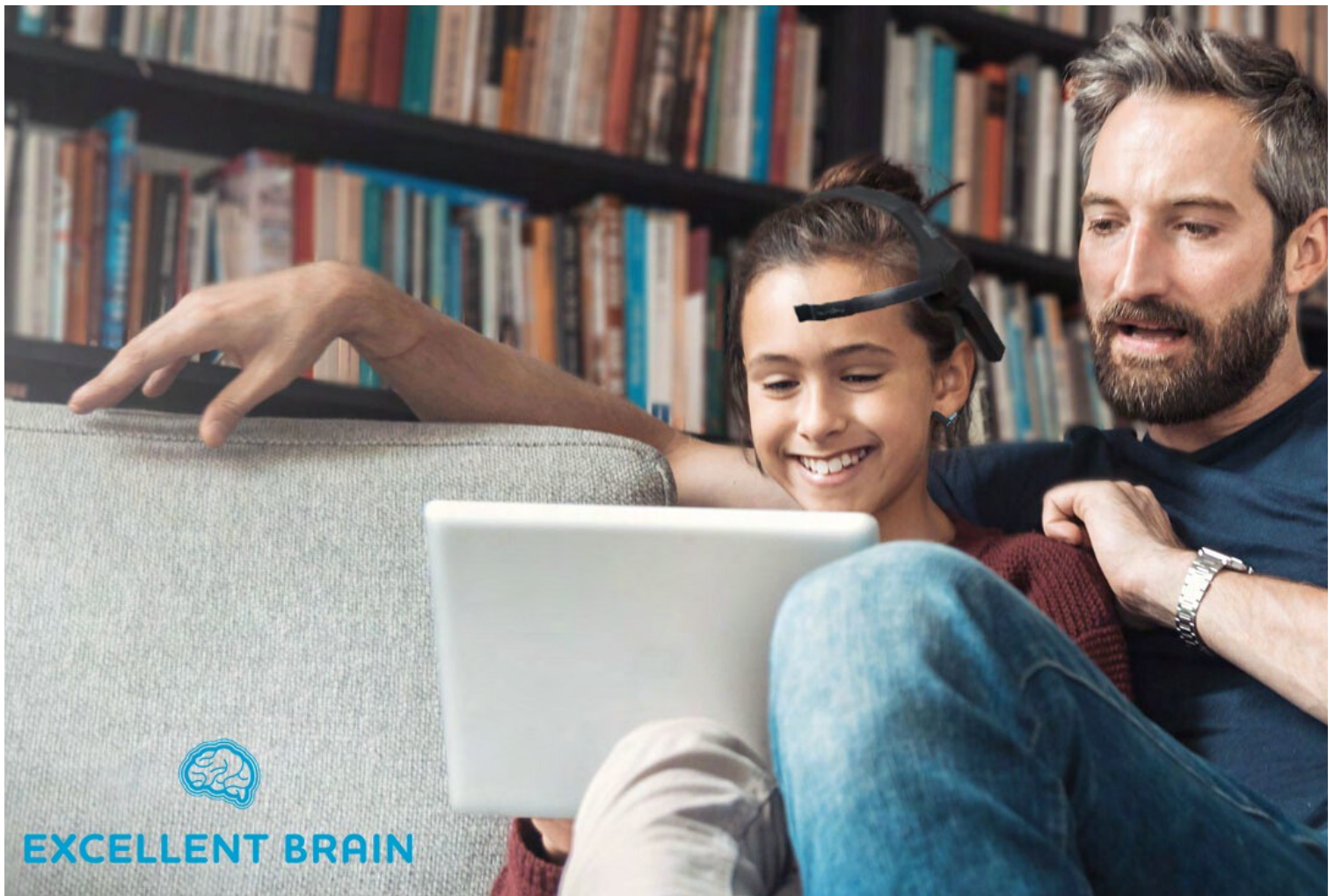
WHAT IS NEUROFEEDBACK?

Neurofeedback is a type of biofeedback therapy that utilizes the electroencephalogram (EEG). It encourages positive feedback using a computer interface. It is a method of managing and regulating brain activity in addition to or to replace medication. Neurofeedback is a psychophysiological method of training in which the participant is shown online feedback of electrical neural activation for the purpose of self-regulation [7].

The treatment uses an EEG that tracks brain electrical activity and a brain-computer interface that displays video games while tracking progress. The repeated training sessions use a biological process called positive feedback, where one action amplifies another. In this case, the training activities offered in neurofeedback therapy motivate the stabilization of brain waves in order to achieve virtual goals. This gradual learning process modifies brain activity and has the effect of reducing severe symptoms [1].

SCIENTIFIC BASIS FOR NEUROFEEDBACK

Clinical benefits of neurofeedback are based on specific EEG patterns exhibited in people with certain conditions. EEG feedback training is then directed at normalizing these rhythms [2].

Neurofeedback is shown to significantly improve cognitive function. In children with attention problems, neurofeedback training showed improvement in divided attention and attentional shifting, response inhibition ability, attention, and working memory tasks [6]. Additionally, subjects show signs of lower impulsiveness and more accuracy.

When neurofeedback was used in conjunction to MPH medication for ADHD, dosage of was reduced which means neurofeedback can be useful to patients who don't show an improved response to single-drug treatment or have side effects [4].

In addition to improvements of inattentive symptoms, parents with children who have a combined subtype of ADHD also reported improvement in hyperactive-impulsive symptoms [2]. Neuro-imaging studies show that neurofeedback training results in functional normalization of the brain in areas responsible for mediating selective attention and response inhibition in children with ADHD [2].

SENSOR RELIABILITY & EFFECTIVENESS

Wearable electroencephalogram (EEG) devices are beneficial for users because of their low-cost portable nature. This allows neurofeedback training on a BCI device to be widely accessible to challenging populations [4].

They show appropriate qualitative and quantitative results and provide stable recordings over long periods of time comparable to medical-grade ambulatory devices [7]. As reflected in trials, EEG data can be successfully collected from consumer EEG systems [4].

These EEG devices are convenient for faster set-up and optimal for use neurofeedback training in both clinical and at-home settings.

SENSOR RELIABILITY & EFFECTIVENESS (CONT.)

NeuroSky's MindSet (MS) is a single electrode headset that reads neural activity using an EEG. "The MS provides accurate readings regarding attention" [6]. Users found the MS to be relatively comfortable, easy to wear, and satisfactory [6].

"The reliability of MS readings to assess attention levels and to amalgamate with user generated data was evaluated in an assessment exercise in Second Life, N=34. The results showed there is variability in the readings and they correlate with self-reported attention levels suggesting the MS adapts to different users providing accurate readings of attention" [6].
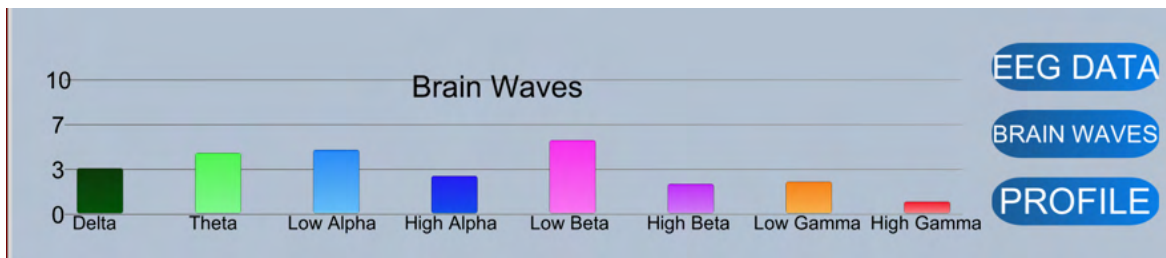
NeuroSky's EEG biosensor perceives brainwave data- such as alpha, beta, gamma, delta and theta waves- to measure attention and meditation levels [3]. This biosensor therefore has a plethora of possible applications.

INTERNAL ASSESSMENT INTRODUCTION

In an internal assessment conducted in 2018 in collaboration with Michal Kenneth, a certified didactic diagnostician and a teacher for remedial instruction, MOXO performed a test before and after the Excellent Brain training program for attention training using the neurofeedback method.

The subject was a fifth-grade student (born in 2007) diagnosed with ADHD and suffering from attention and focus problems.

The subject underwent a MOXO test prior to the Excellent Brain training program for neurofeedback attention training. After the assessment, the subject underwent an Excellent Brain training program for attentive training of 28 sessions in which he practiced using the neurofeedback method using the Excellent Brain platform for attention training. After the training program, another test was administered which is detailed in this document.
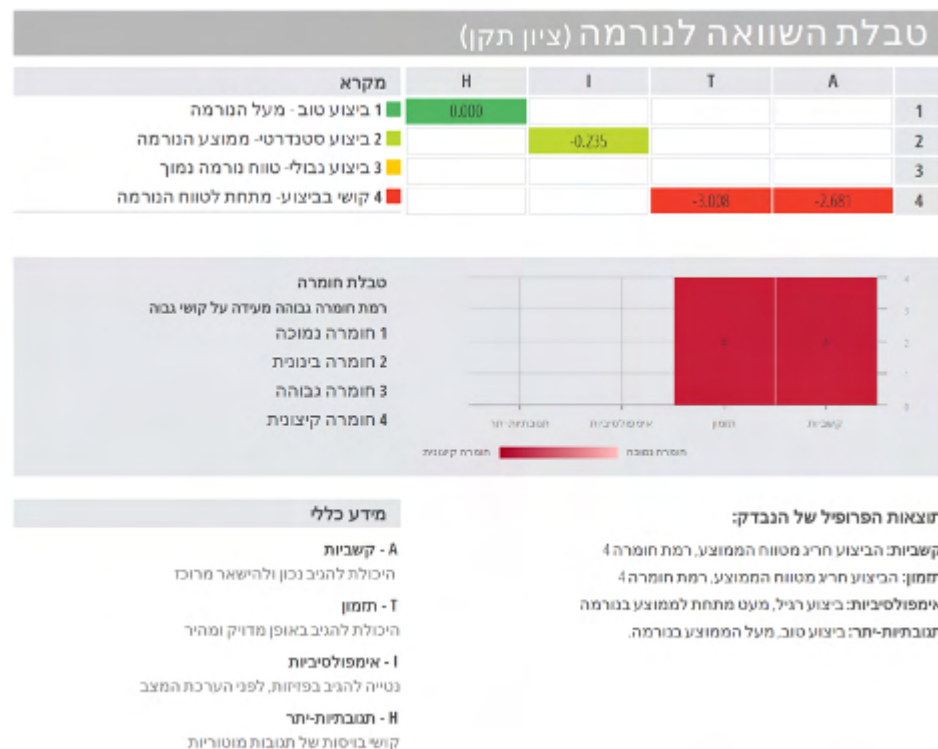
PRE-TEST RESULTS

MOXO assessment- performed prior to the Excellent Brain training program on 04/01/2018.
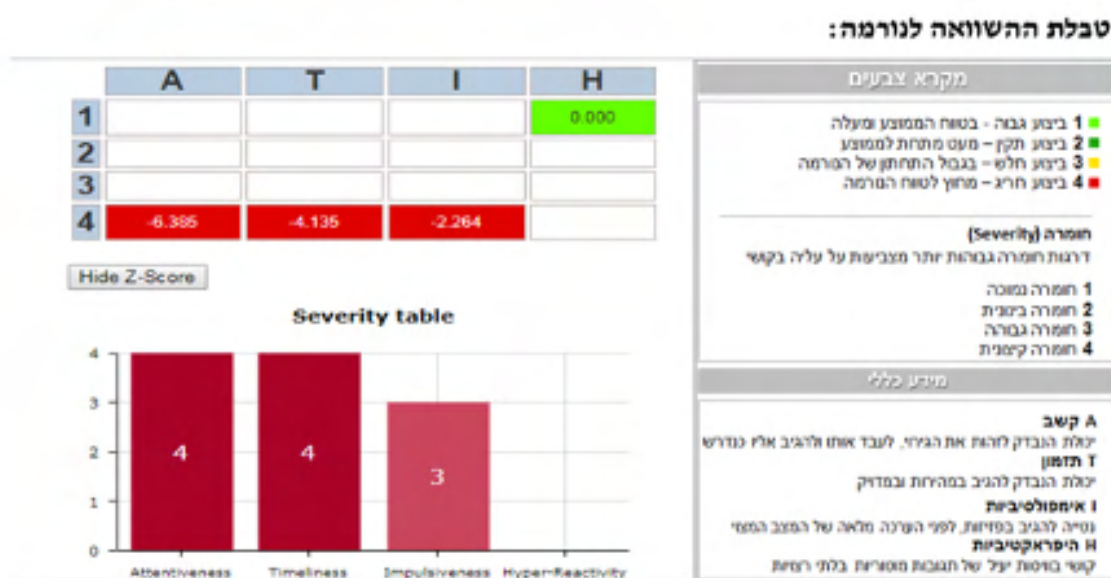
POST-TEST RESULTS

The following are the results of the MOXO assessment administered after the Excellent Brain training program on 07/13/2018.

טבלת השוואה לנורמה (ציון תקן)

מקרא	H	I	T	A	
1 ביצוע טוב - מעל הנורמה	0.000				1
2 ביצוע סטנדרטי- ממוצע הנורמה		-0.235			2
3 ביצוע גבולי- טווח נורמה נמוך					3
4 קושי בביצוע- מתחת לטווח הנורמה			-3.038	-2.681	4

טבלת חומרה

רמת חומרה גבוהה מעידה על קושי גבה
1 חומרה נמוכה
2 חומרה בינונית
3 חומרה גבוהה
4 חומרה קיצונית

תוצאות הפרופיל של הנבדק:

קשביות: הביצוע חרג מטווח הממוצע, רמת חומרה 4
זמון: הביצוע חרג מטווח הממוצע, רמת חומרה 4
אימפולסיביות: ביצוע רגיל, מעט מתחת לממוצע בנורמה
תנובתיות-יתר: ביצוע טוב, מעל הממוצע בנורמה.

מידע כללי

A - קשביות
היכולת להגיב נכון ולהישאר מרוכז

T - זמון
היכולת להגיב באופן מדויק ומהיר

I - אימפולסיביות
נטייה להגיב בפזיזות, לפני הערכת המצב

H - תנובתיות-יתר
קושי בויסות של תנובות מוטוריות

CONCLUSION

The conclusions of the assessments show clear improvement in two vital measures of ADHD:

1. The Impulsivity Index (I): Prior to treatment, abnormal performance was observed (-4.135). Treatment after the Excellent Brain training software showed improved average standard performance (-0.235).
2. Attention Ability (A) showed improvement from (-6.385) to (-2.681).

CONCLUSION (CONT.)

Comparison table for the pre- and post-test results:

	H	I	T	A
BEFORE THE TRAINING PROGRAM	0.000	-2.264	-4.135	-6.385
AFTER THE TRAINING PROGRAM	0.000	-0.235	-3.008	-2.681

Comparison graph for the pre- and post-test results:
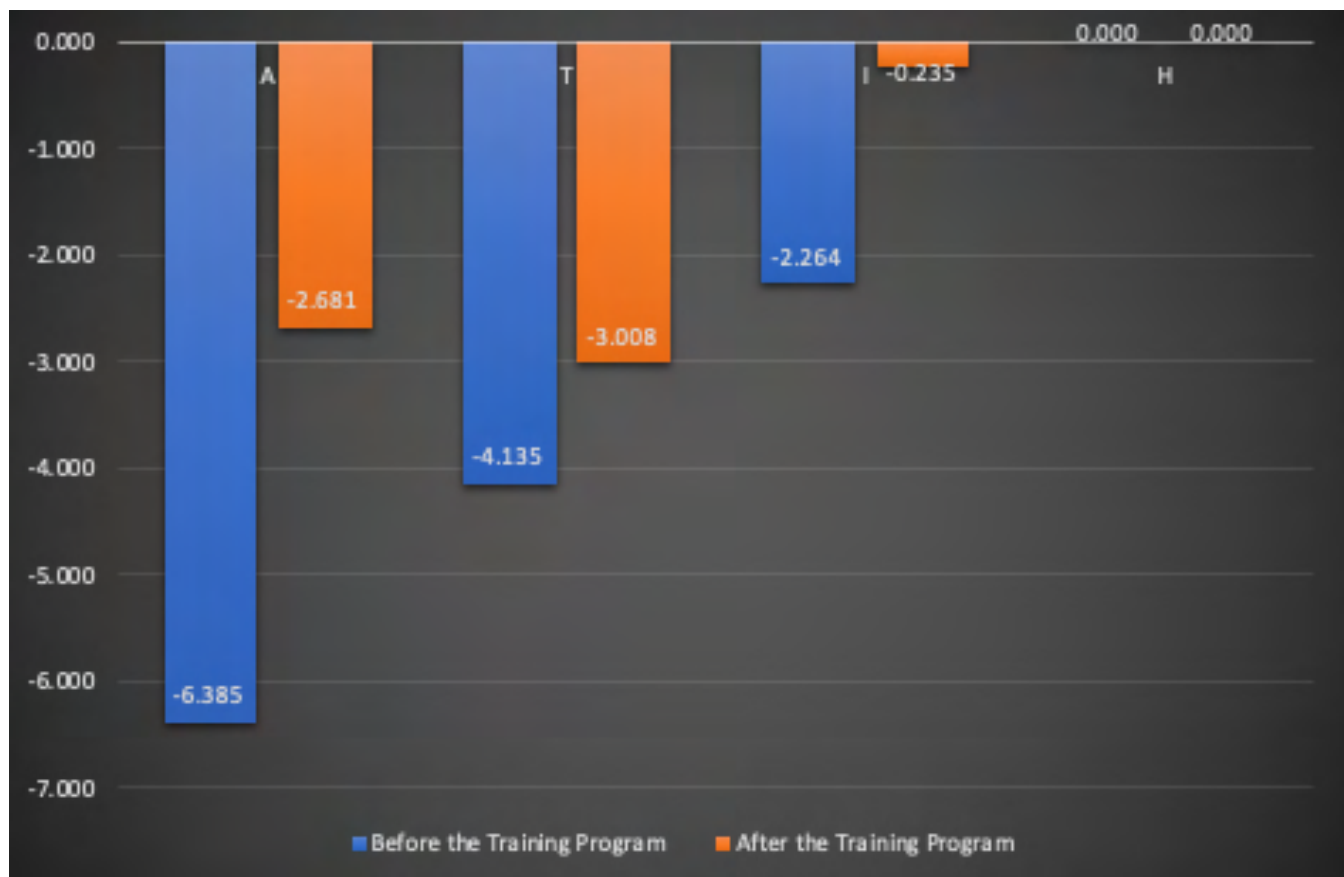
The assessment was conducted to provide scientific support for the effectiveness of an Excellent Brain training program for attention training using the neurofeedback method.

BENEFITS

- Excellent Brain's neurofeedback training provides therapy comparable to drug treatment **without negative side effects**.
- The video game format of training activities is also attractive for children who have experience in playing virtual games. The researched activities,however, are nonviolent and provide goals for children to increase focus and attention.
- Neurofeedback trains brainwaves and uses the essential principle of neuroplasticity to optimize brain health.
- Besides benefits for ADHD, neurofeedback training can potentially help memory, anxiety, and sleep.

USER FEEDBACK & RECOMMENDATIONS

" *"Hello, I got Excellent Brain to train focus and attention because I play table tennis here in Brazil. I am a veteran athlete and I play state and national tournaments. In December 2019 after my intensive training with Excellent Brain, I participated in the national tournament and felt more focused and stable in the games. I am making progress although I am not being monitored by a neurofeedback professional. I know I can do random activities but I prefer to do the exercises managed by the software. Our competitions start again in March 2020 and I hope to be much better with more focus and calmness to execute my skills."* "

- DENIS, BRAZIL
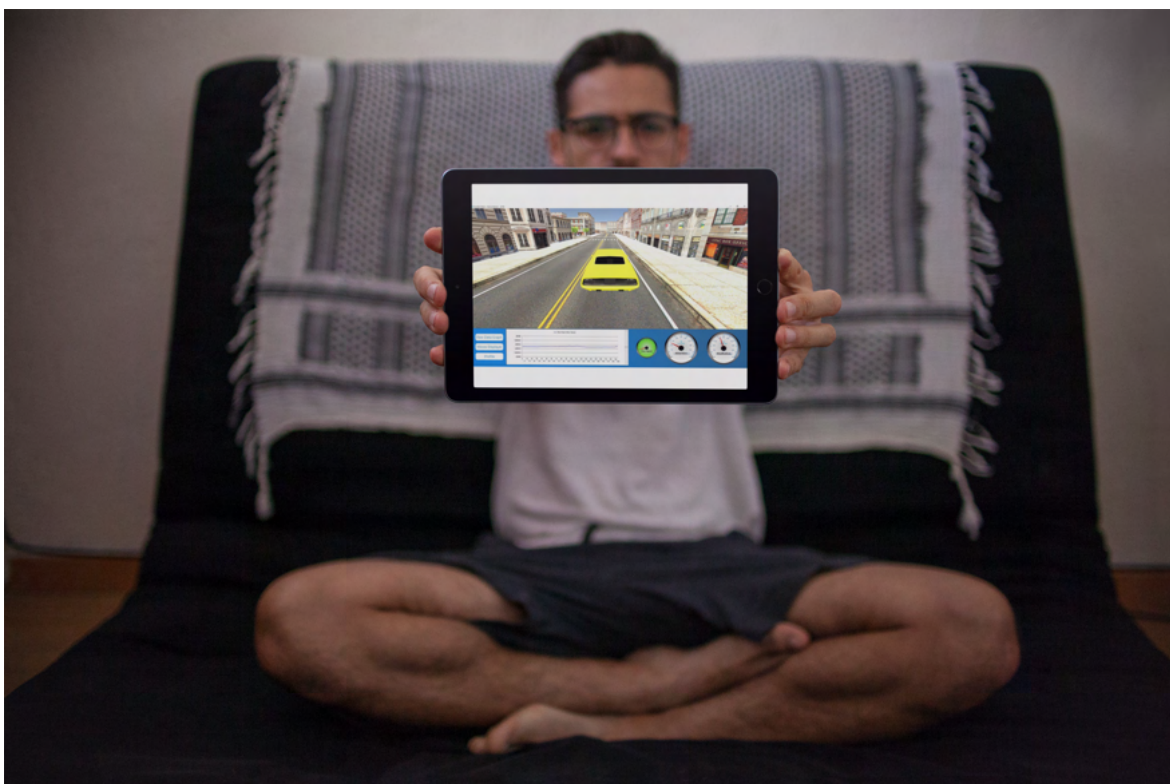
Excellent Brain software is a revolutionary program that helps children and teens with attention deficit problems. This wonderful software is friendly, easy to use, and challenging. The user's infatuation with the software is fast, the software helps the children understand when they lose focus and when they are present, and thus they are able to take responsibility and be focused while doing homework alone or with friends.

-YOSSI GEVER: CHILDREN AND YOUTH COACH

USER FEEDBACK & RECOMMENDATIONS (CONT.)

I would like to thank you for the opportunity you gave me to get to know and participate in the Excellent Brain program. A program that helps children with ADHD, overcome learning and behavioral difficulties and improves their self-esteem significantly. The program offers amazing technology that only a few people can consume because of its high costs especially for weak populations who cannot afford financially. I would like to thank you on behalf of the principal of the school - Iris Ido Mastai and on behalf of the children and their parents who participated. Thank you for giving the children in Ramla a chance and opportunity to realize their abilities.

-PIPPIN EISENSTEIN: SCHOOL COUNSELOR

" Michal Kenneth, an expert treating attention deficit disorders, talks after the first training session of a 5th grade student using the Excellent Brain exercise program : "The student is a child that I know well and was treated with Paramedical therapy over a year and a half. We had the first session using Excellent Brain in the afternoon; he was sitting straight, held his hands together and kept his attention level during the training. He eventually improved his results during the training, a huge surprise to me and to his mother. The appearance of keeping the posture of the body and the hands while creating attention and focus was a novel for all of us. Even after the first training with Excellent Brain, you already understand that you can induce input from the training to the real world. You can then be mindful with your body language when you want to generate attention. The results can be applied in class and at home. Not to talk about the enthusiasm to meet, and start playing computer games."

"He kept on talking about the great experience of training," the mother adds.

-MICHAL KENNETH: A DIDACTIC DIAGNOSTICIAN AND A TEACHER OF CORRECTIVE INSTRUCTION FROM A SENIOR MOXO DECODER WHO SPECIALIZES IN ATTENTION DEFICIT DISORDERS

USER FEEDBACK & RECOMMENDATIONS (CONT.)

Excellent Brain
Largest Selection of Neurofeedback Games

EXCELLENT BRAIN

WHAT THE PROCESS LOOKS LIKE

The purchase of Excellent Brain's Neurofeedback kit includes all materials needed for training as well as Neurosky's Mindwave EEG sensor.Whether used at home or with a trainer, the user obtains access to 30 encounters that are each 20 minutes long. An encounter consists of 10 activities that are about two minutes long. An activity is a computer game that requires attention and concentration measured by the home EEG sensor. Progress and achievements measured by the sensor are uploaded to an encrypted cloud-based server that can be accessed by the user with a Wi-Fi connection. For the best results, it is recommended that users train for about two to three times a week. The program lasts about 15 weeks. All activities are fully monitored and analysed.

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