

Treatment of Students with ADHD without Medicines, But with Sensory-Motor Integration Training (SMI-Tx) (1) Combing Latest qEEG and Neurofeedback Come to the Shortest and the Best Results

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Received: 25 August 2020; **Accepted:** 19 September 2020

Citation: Shin-Siung Jung MD, Simon Jung S, Pei-Rong Chang. Treatment of Students with ADHD without Medicines, But with Sensory-Motor Integration Training (SMI-Tx) (1) Combing Latest qEEG and Neurofeedback Come to the Shortest and the Best Results. *Int J Psychiatr Res.* 2020; 3(5): 1-9.

Keywords

ADHD, Nerves vessels, Blood vessels, Exercise.

Introduction

Everspring designing SMI-Tx is for treating ADHD with deficiency of the nerves, blood vessels, and dopamine [1-4] with defect in the frontal and prefrontal lobes. When students exercising on the prone extension posture on scooter board, the body muscles, bones, joints move vigorously, generating a large amount of kinesthesia and vestibular impulses, which are quickly transmitted to the whole body (4) maintaining a new sense of balance, and also transmitted to the cerebral cortex of the whole brain and forehead area. During the exercise, the forehead has a slight hot and floating sensations, presumed supplementing the lack of blood vessels, nerves, and dopamine. This requires cooperation across whole family members, do not nagging, only giving small amount of substantial praise or reward. Training 1-2 sessions a day. If daily exercise strong enough, about two to fourth weeks, students will concentrate, quiet, impulses disappear, and automatically improve bad habits from the above-mentioned deficiencies from the frontal and prefrontal regions. If home exercises or school SMI-Tx competition loose, the trainings may take 3-6 months.

Everspring in past one year had 65 grade students with ADHD (male 47-72%), female (18-28%), near the end of SMI-Tx training. We did qEEG checking all of their brain waves, with age ranged from 7.3 to 12.5 years. Results show all networks z Scores around ($\pm 2 \sim \pm 3$) or worse Compared with US FDA certification from 2 MONTH infants to 82-year-old 727 numbers of the brain waves norm [5]. According to the age of the brain wave norm, all 65

students have different levels of brain waves dysplasia. 14 (21%) out of 65 parents believe that no need to do neurofeedback. 51 parents accept do the neurofeedback. In which, 13 (25%) have severe headache due to endemic influenza during beginning 2-3weeks, with degradation behavior, improved in 4-7days after immediate medications, and network recover to normal range (z Scores $< \pm 2$), in one to two weeks. The remaining 38 cases were subjected to 1-2 neurofeedback sessions, and the brain nerve cells and network z Scores were normalized with z Scores $< \pm 2$ which are normal. Conclusion: children having ADHD and other minor problems should accept Sensory-Motor Integration training and neurofeedback. The result is no medication, and the latest and best results.

Finding of Chief Effect of SMI-Tx in treatment of ADHD

In 1983 Shin-siung Jung MD. and Chairman Juliet Jung visited Dr. Ayres (Sensory Integration Therapeutic Room) [6,7] in Southern California.

After back to Taiwan, we reported to Dr. Mao Lianqi then the Chief of Taipei, Department of Education, Taipei City Government, reporting that the Sensory Integration Therapy is very helpful to ADHD, and talent gift student with clumsy hands, and poor coordination between hand-to-face-organs or very clumsiness, and tactile defensiveness (Hypersensitivity suppression difficult or introverted Disorder). We started the therapy at an elementary school about students with ADHD, once per Saturday pm for 2 hrs. We did regular courses for one year, without outstanding achievement.

One day, 16 group mothers with students having ADHD, asked for using 40 minutes of morning time of cleaning class rooms in general classes, students with ADHD could use time for exercise--20 minutes running up and down of ramping board, then another 20minutes, shooting and chasing the balls and/or ball fighting. All the mothers should attend the sessions to protect any danger to the students with ADHD, preventing the quarrel or any fighting between the students.

Within 2 weeks, all the teachers and parents reported to me, that all students used be ADHD with hyperactivities, impulses, distract, discoordination, or clumsy students, have become quiet, full concentration in lecture, and quickly finishing homework on back home. These indicate brain organization had changed, all ADHD symptoms and signs got improved. You can further training by hints and praises to do house affairs and organization, and executive function,

The frontal and prefrontal pale defects in BOLD fMRI (picture 3) apparently got rapidly self-repaired on strong exercises with prone extension posture 40 minutes daily in 2 weeks. We have learned intensive exercises activities from prone extensive posture is the key success to SMI-Tx on scooter board. We use name "Sensory-Motor-Integration Training", because improvements from coordination of muscles, bones, and joint movements, transmitting immediately to whole body and cortex [4]. All come from motor transmission. Pure sensation contribution is very few from sensory but motor coordination. We know "kinesthesia" can be sensory, but behave as motion. Activities need to be large and strong, and interesting. This was new but then unexpectedly findings. We have used it up to now for 35years.

Foreword

For accurate diagnosis of attention deficit/hyperactivity disorder (ADHD) [5] Children must exhibit six or more symptoms of inattention and hyperactivity, impulsive and/or ADHD with six or more symptoms of distraction at least 6months. Most children have an ADHD combination of different elements in the form, which is clearly more common than other children of the same age. ADHD children often experience problem temperament, motor skills, study skills and social skills, both at home and in the classroom. Although ADHD the etiology of is unclear, studies have shown that genetic, physiological or biochemical disorders, brain damage during pregnancy and environmental factors (smoking or drinking) can all play a role. ADHD.in one study clinical and functional outcome of childhood, 33 years Later that the education level of ADHD in children diagnosed with ADHD was significantly worse; occupational, economic and social outcomes were also poor [2].

Later in this article, 65 children with ADHD are checked by Everspring teachers and talked with parents. All of them meet the above conditions.

Ayers [4,5] mentioned: From time immemorial, vestibular balance organs to resist the force of gravity to guide the development of the lower animals to higher animals. The prone position is to

re-experience the process of speciation and individual ogenesis. It is very focused to find food. It is very focused to avoid being eaten by the enemy. It has been important for the survival of animals for thousands of years. This is also of re-experiencing the human infant 6-10 months old the activity body climbing posture for months, which can increase the nerve pathways in the prefrontal and somatic areas. Referred to herein later sensory integration exercise training (Sensory-Motor-Integration Training, abbreviated as SMI-Tx) stretching from Ayers prone posture and against gravity, and the guide lower animals developed into the concept of higher animals. Everspring found that the more intensive and more forceful in treatment of ADHD students [4], the movement induced in the prefrontal lobes having a slightly burning, and floating sensation, followed by lack of impulsiveness behavior, more concentration, more stable mood, and progress in homework. When exercising on the prone extension scooter board, the muscles and bones move vigorously, generating a large number of Kinesthesia and vestibular impulses pulsations, which are quickly transmitted to the whole body, maintaining a new sense of balance; also transmitted to the whole brain and prefrontal area of cerebral cortex. This also represents the impulses of Kinesthesia and vestibular sensations, the behavioral control of the frontal and prefrontal lobe in the abnormal and impulsive areas of the nerves and dopamine, improving the focus and the dexterity of the hand, and thus the improvement of homework and the improvement of interpersonal relationships.

Ayers [4,5] did mention that from ancient times, the vestibular balance organs used the anti-gravity nature to guide the lower animals to develop into higher rank animals.

The movement in the prone position is to re-experience the process of speciation and individual oogenesis. It is very focused to find food, and also very focused to avoid being eaten by the enemy. It has been important for the survival of animals for thousands of years. This is also of re-experiencing the human infant 6 to 12 months old, doing the activity of climbing posture for months, which can increase the nerve pathways in the prefrontal and somatic areas.

EEG (Brain Waves) in 1929 by the German psychiatric scientist (Dr Freda [8] issued Electric alto see the electric eel, found that the human brain has a "current ripple". The cause of brain waves is the electrical pulse caused by the release of current from nerve cells in the brain, which may have different effects on the human body due to frequency. For example, excessive discharge may cause epilepsy (Epilepsy); brain waves may also stimulate with external environment such as light stimulation. The sound wave stimulated and changed.

Brain waves are divided into five bands:

δ (Delta Wave 0.5~4 Hz) slow, high amplitude brain waves, deep sleep, no dreams, good sleep quality;

θ (Theta Wave 4~8Hz), main subconscious, and slow wave the second phase of sleep is related to hypnosis and meditation;

α (Alpha Wave 8~12Hz), conscious and relaxed state belongs to the dominant wave, the best learning such as calculation, can cure anxiety;

β (Beta Wave 12~35Hz), Fast, low amplitude waves, awake brain waves, thinking, anxiety, calculation, attention;
 γ (Gamma Wave 40 Hz high frequency above), fast eye movement (REM), high frequency factor, people in this state will be full of energy and remain highly alert and thinking.

In the past, brain waves were used to diagnose large and small epilepsy (Grand mal seizure, Focal seizure, Petit mal seizure, etc.), and whether there are intracranial blood clots and/or diffuse edema, and tumors size, and position, to further perform tomography scans for neurosurgery treatment and continuous tracking.

In the past 30-40y years, European and American psychologists have devoted themselves to the research and publication of brain waves. In the distribution of brain wave groups, there are moderate, if above-or below mentioned moderate, then brain function is abnormal, and working efficiency are seriously imperfect. If abnormal brain waves, especially the excessive undifferentiated (deep red color) and / or too weak on (thin or deep blue color) conduction can lead to thinking, learning, expression, emotional and judgment, there will be a variety of defects. The basis for good or bad brain waves comes from normal and healthy 727 brain waves from 2 months infants to 82 years old. In which moreover, there is no history of neurological diseases, no history of behavioral disorders, and most of the subjects in the normative database in schools are given extensive neuropsychological tests. The criteria for screening brainwave norms are demographics, neuropsychological tests, Gaussian distribution tests, and cross-validation tests in several peer-reviewed publications [5] which are described. This is the US Food and Drug Administration (US FDA) certified first brainwaves norm.

The abnormality of the brain wave itself cannot be used as a basis for diagnosis or treatment schedule. The clinician must refer to the parent's account and the length of the case history (the assistant can assist in collecting information), plus the observation and examination of the neurologist and psychiatrist. With the objective diagnosis and coordination of brain waves tailor-made cranial neurofeedback training one hour at a time; 10 times per session. If result not ideal, you can add one or a few neurofeedback trainings and brainwave reports).

For more than 40 years, the European and American psychologists have also discovered neuroplasticity [10] - such as boxer or sportsman's self-diet training, to increase muscle nutrition and hypertrophy, use training to speed up the muscles, and strive for the principle of victory is the same, without invasive injections, medication or surgery, dysmotility, distraction, severe distraction, impulsiveness, very sensitive and afraid of making friends, or other behavioral disorders and learning difficulties, etc. The standard score (z SCORES), compared by age, is compared with 10 nerve feedbacks [10] to help brain cells automatically correct. It can improve dysmotility, impulsivity, severe distraction, learning difficulties, and improve executive and organizational skills. Dr. Thatcher creates brain full-scale scores (z Scores), abnormal brain waves (such as depression network), and brainwave training

corrects the size of all other brain networks.

The abnormality of the brain wave itself cannot be used as a basis for diagnosis or treatment training. It must be referred to the clinician by the clinician and the length of the case history (the assistant can assist in collecting information), plus the observation and examination of the neurologist and psychiatrist. With the objective diagnosis and coordination of brain waves, tailor-made cranial nerve feedback training (one hour at a time; 10 times per session. If not ideal, you can add neurofeedback training and make brainwave reports).

Materials and methods

Training methods for Sensory- Motor Integration Training (SMI-Tx).

School group training or individual activities at home:

1. Push the ball on the prone extension on scooter board.
2. Hold your feet on the scooter board and walk by hands.
3. The adult is sitting, the schoolchild is lying on his fore-chest on scooter board, and the two are facing each other, making an exchange ball.

The amount of exercise starting from the middle of the kindergarten to the lower grades of elementary school starts from 50 to 100, and increases by per week 50, the maximum amount is 400; the amount of exercise from the third grade of primary school starts from 200 and increases by per week 100. A large number of 800; daily can be divided into 1 or more times. From two weeks to fourth weeks, significant progress can be seen, such as emotional stability, increased concentration, and the dexterity of hand-eye coordination.



Figure 1: Chief 3 prone extension exercises, with prefrontal mild heat and bloating.

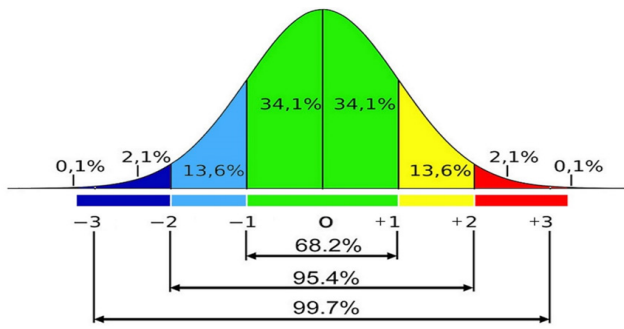


Figure 2: Quantitative electroencephalogram (qEEG) analysis adopted Standard Scores (Z Scores).

ZScores (0±2) is normal; (±2~±3 and ±4,±5,±6,±7, or higher number) all are abnormal. Deep Blue indicate (very weak, -2~-3 & negative smaller number), or deep red (not differentiated, +2~+3 & positive bigger number) in brain wave pictures, all need to do neurofeedback, and brain can do self-correction.

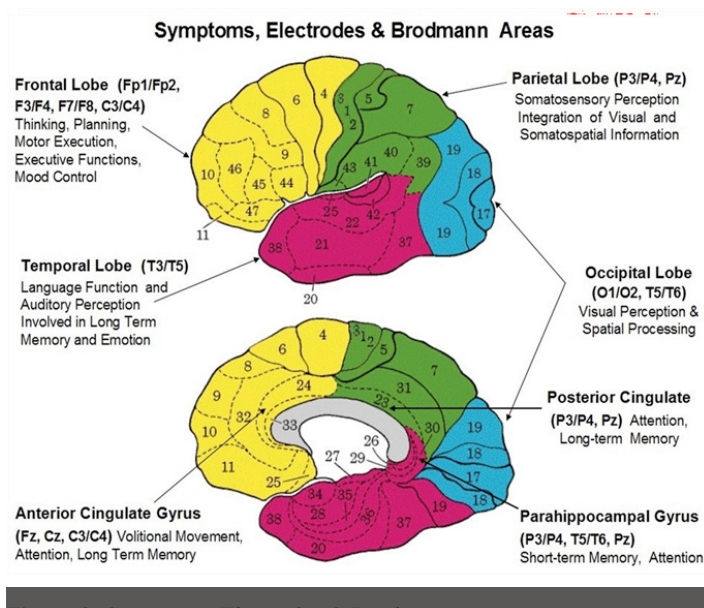


Figure 3: Symptoms, Electrodes & Brodmann areas

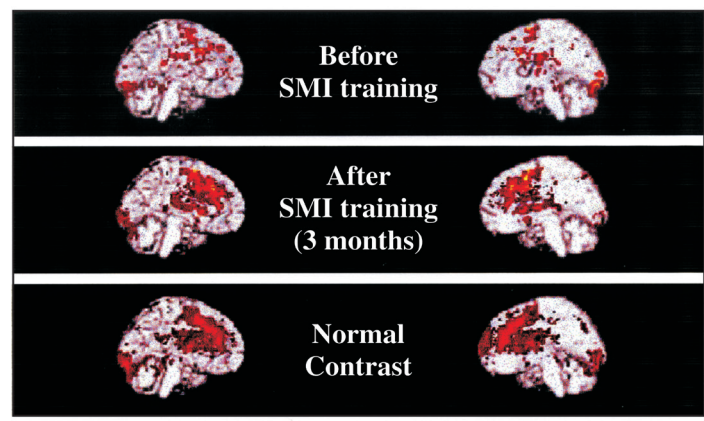


Figure 4: (fMRI) Functional Magnetic Resonance Image, BOLD data.

This picture was revised and allowed to be published. The original issue was in the Taiwan Special Education Quarterly Issue 101 (2006) (3D).

SMI-Tx =Sensory-Motor-Integration-Training.

Legend Description:

The above two images are (abnormal control group, same behaviors 8 people in), showing Hyperactive, impulsive, distracted school children (ADHD), before performing intensive Sensory motor Integration training (SMI-Tx) showed that the prefrontal lobe few blood vessels, nerves, and dopamine, and did not adequately activate the active (ADHD) prefrontal lobe of the student, showing paleness there. These students are severely distracted, often impulsive, sensitive, clumsy, uncoordinated, emotionally unstable, unorganized, and lacking in execution.

The middle two images (abnormal experimental group, same behaviors 8 people in), these active distracting students (ADHD), received three months of intensive SMI-Tx, the prefrontal leaves will have slight heat and bloating, then the frontal lobe becomes pink, with adequate vascular, nerves, and dopamine. These students became quiet and not impulsive in the class and showing full concentration, reduction of oversensitivity and clumsiness, but good coordination, and emotional stability; under the guidance of parents, the children learn moderate organizational skills and have good execution.

The following two images is (normal control group, same behaviors 8 people in), showed normal student prefrontal already pink, had enough blood vessels, nerves and dopamine. These students showed full concentration, hand-eye coordination, emotional stability, good organizational skills and execution. There have not been trained on SMI-Tx.

Below is the code33 (ADHD)/Training Process

"Everspring Foundation' the Ethics Committee for Culture and Education Foundation approved the study of "Sensory-Motor Integration training SMI-Tx), add new diagnostic qEEG and neurofeedback Training one-year, Review No 6 of the progress). Participants get verbal parental consent, and includes images of people recorded, and written parental consent."

Code 33

12years boys grew restless, impulsive, severely distracted, introverted personality, have well educated senior parents. School teachers repeated want code33 take Ritalin, but the parents hesitated for drug. Half a year ago, parents bring code 33 to Everspring to do SMI-Tx training. Parents also did the same exercise at home, plus weekly records and comment to Everspring chart records as Everspring recordings. All of the family went to the United State 2 months during the summer. Return for neurofeedback

Before NFB Brain waves Attributes; changed to normal after NFB 10 times.

T2 After NFB 10 times brain waves attributes changed quite a lot to normal.

T1 before Neurofeedback, Network z Scores >+3~+4.5

T2 Neurofeedback 10 times, Network z Scores <-1~+2.

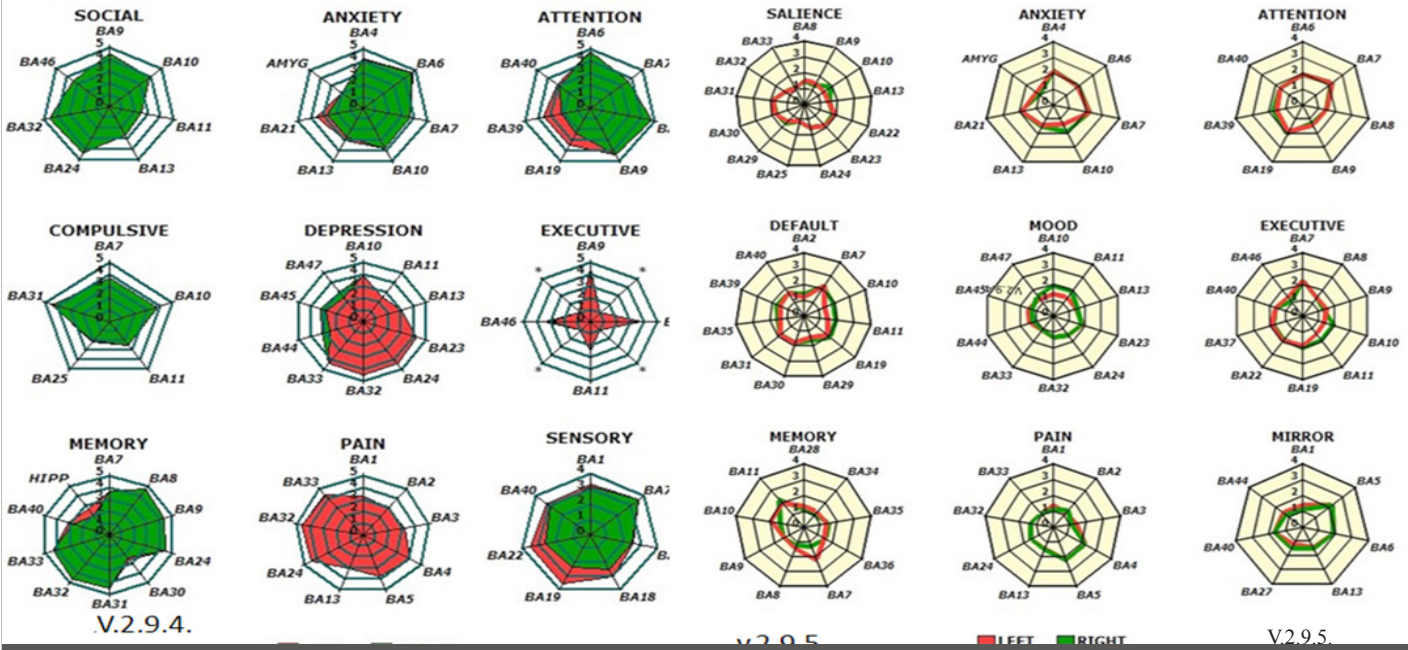


Figure 5: Networks z Scores before and After neurofeedback 10 times Code33.

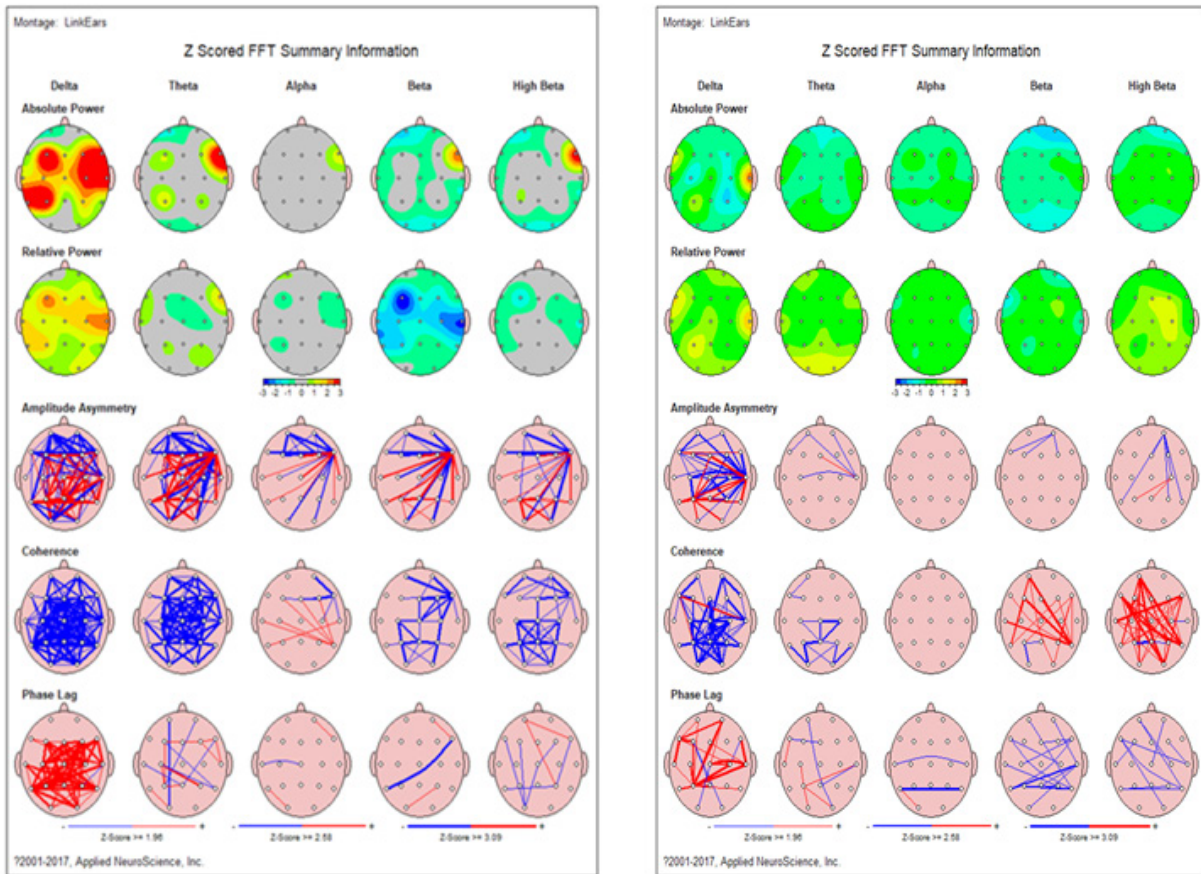


Figure 6: Change in Brain waves Attributes before and after neurofeedback (NFB) 10 times.

No 33 Legend: T1 T2

Relative power no deep red, no deep blue, send node information. Amplitude Asymmetry few red. (delta beta) (some deep blue). Send nodes information slight difficult. Coherence T1 delta (lots of deep blue); theta & beta (a few deep blue) rather weak in sending nodes information, especial in delta. Need further NFB.

T2 after 10 times of NFB, improved in attributes. esp. at the same time sending node information, much easy. Phase lag T1 worse in delta, T2 much better.

T2 No abnormal deep red and deep blue is normal. the bases of total communication of at the same time

Below T1 is qEEG before neurofeedback of a medical staff.

T1 network standard score $\pm 4 \sim \pm 6 > \pm 2$, can't work, the situation is serious.

Subject: Anxiety; Serious distraction; Jumping thinking.

Past situation: Skilled in craftsmanship

T1: when we first saw the case, he had few words, a little unscramble,

T1 (No18) z Scores FFT Summary Informat. T2 (No18) z Scores FFT Summary Information.

Summary of one-year survey of treatment about students with ADHD

65 students with ADHD After receiving sensory-motor integration training, to accept the first brain wave detection, in the radar chart z SCORES are more than ($\pm 2 \sim \pm 3$); 14 of them (22%) after the detection of brain waves, parents feel that the SMI-Tx has improved a lot, no need to do neurofeedback. Everspring gave blessings and told these parents that if there is flu and the pain in the back of the head, you can find a neurologist, or discuss with Everspring Dr. Shin-siung Jung how to get improved as soon as possible.

- 51 cases accepted extra-neurofeedback. But 13 (25%) cases have the phenomenon of influenza and severe neuralgia. The radar chart of z Scores were expanded to ± 4 to ± 5 to form a curved, or jumping pattern. Children become restless and distracted, unable to sit still for 5-15 more minutes.
- We told parents that this is a seasonal infectious epidemic flu associated with severe headache, or a severe cold phenomenon, we did have such experience. 13 parents might ask for neurologists help with anti-inflammatory, antipyretic medicines and mild sedation for children. 13 patients with influenza and neuralgia after taking the medicine drug 4 to 7 days got improved. Within two weeks, the radar network z Scores returned to $< \pm 2$ below normal value.

<p>T1 before neurofeedback (nfb) 1hz-5hz in ant. & L.Temp.-Occip. Area & 11hz-20hz in central block: lots of no good for communication of adhd ld efd may induce: adhd, ld, & efd.</p>	<p>T2 after nfb 10 times total disappear of undifferentiated red absolute power block good for communicat. Total improvement. Improved in ld, adhd; efd?</p>
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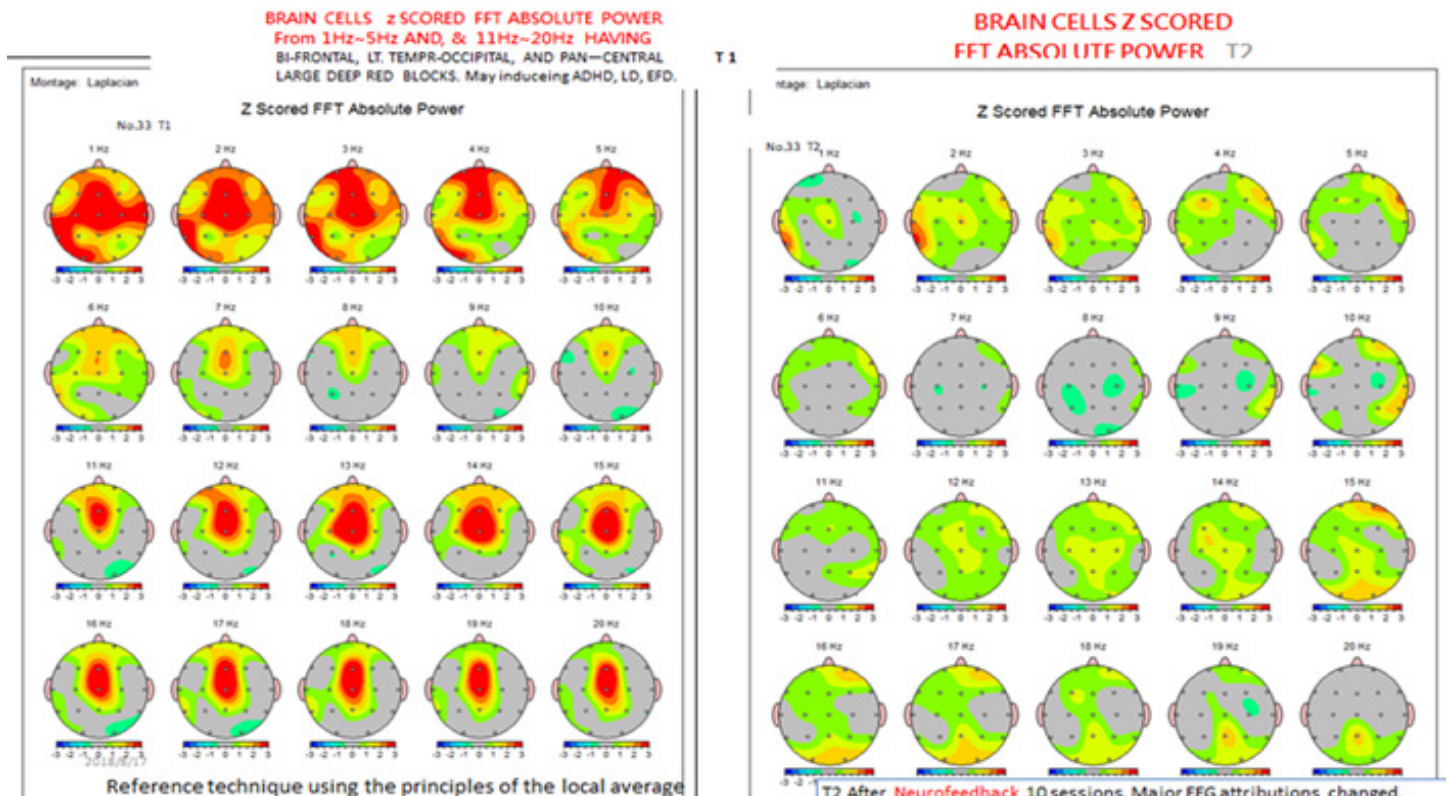


Figure 7: Brain Cells Z Scored fft Absolute Power.

and no facial expression.

and no facial expression.

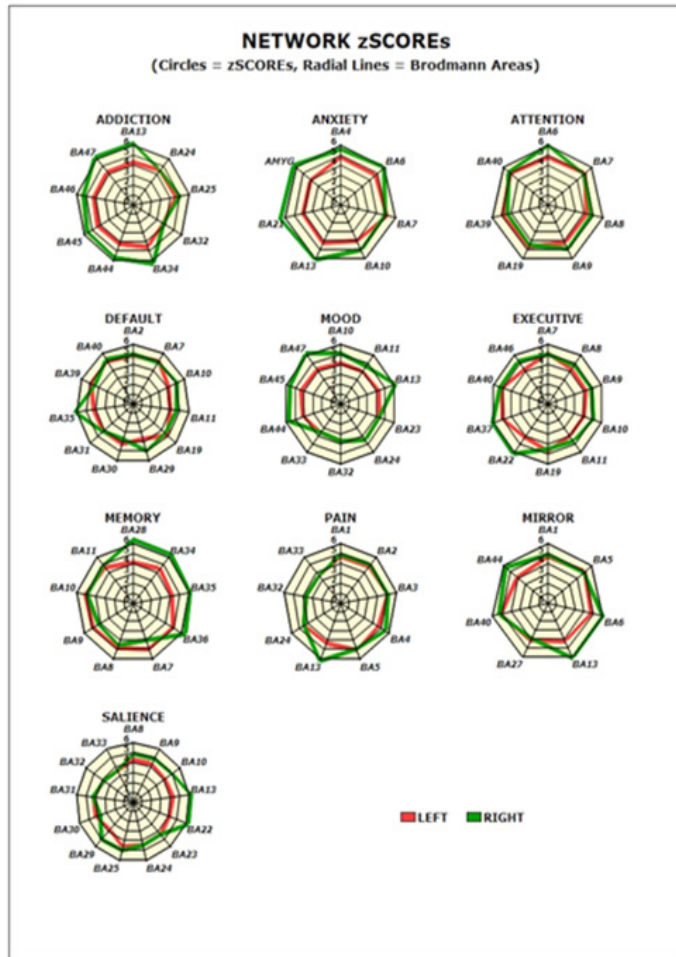
T2: After ten times of neurofeedback, we can feel the emotions of the case are more cheerful, the facial expressions become more and more, and will play with the children, it is also more energetic. The case felt that sleep time was earlier, thoughts were more positive, and anxiety improved. All networks are scaled down to a ± 2 Score or. The case felt that the execution, memory and emotional acuity of the case needed to be strengthened, and the from the Network report data SALIENCE Network-NS improved. However, the case felt that there was progress and asked to stop training.

T1 Before neurofeedback (NFB)

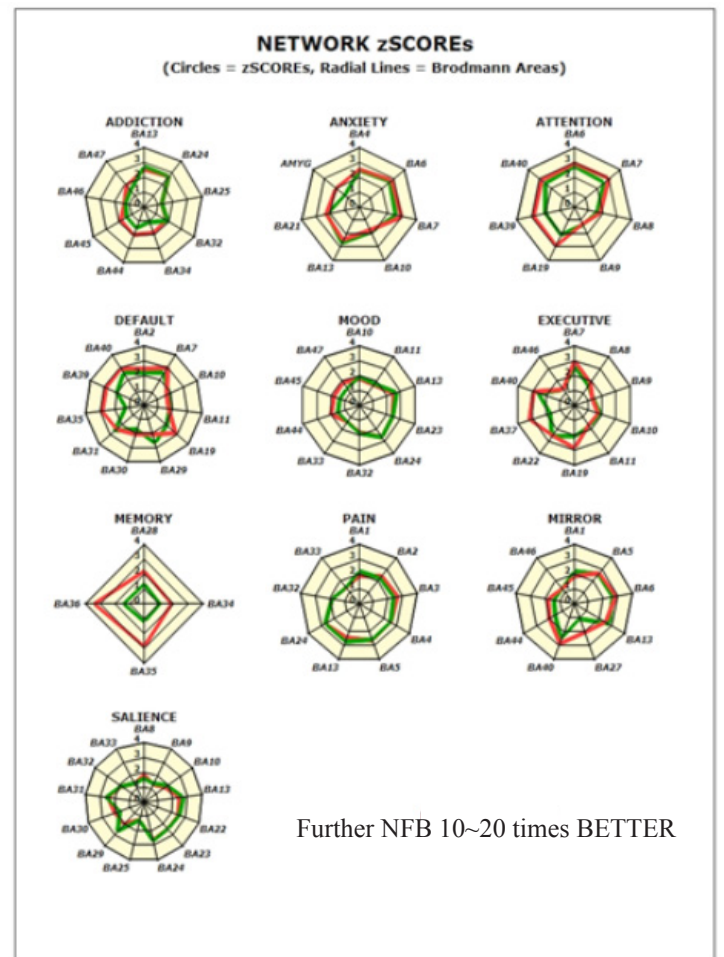
T2 After NFB 10 times

No 18

No 18



NETWORK z SCORES $>+4 \sim +6 >+2$ SE. Disorder



Further NFB 10~20 times BETTER

NETWORK z SCORES $>+2 \sim +3 >+2$ improved.

- In another 38 cases, 10 to 20 neurofeedback were performed, and the homework and interpersonal relationship improved by 98%. 10 radar networks are with z Scores within $0 \sim \pm 2$ (100%).
- One immigrant student did not perform brain wave post-testing, but intensive exercise training at home before going abroad, according to the SMI-Tx rating scale and the results of the measurement of the dynamic distraction scale, progress is much good.

Results

SMI-Tx training can improve face as well as body hypersensitivity, and make clumsy hands and feet into fine coordinating

(neurofeedback of brain wave training cannot correct these). Through a strong body motion balance of vestibular senses, and plenty kinesthetic of nerve impulses from strong exercise of head, neck, hands and feet, bones and other body area, immediate spreading to whole body to keep new balance. Impulses not only to body, but also to cerebral cortex and prefrontal lobe (4). Exercise-induced prefrontal area will show slight hot and inflation senses. In two to fourth weeks with daily intensive exercises there will be no impulsive and hyperactivity, and quiet and focused in class. The strong movements of the prone extension postures have been complemented the defects in the nerves, blood vessels, and

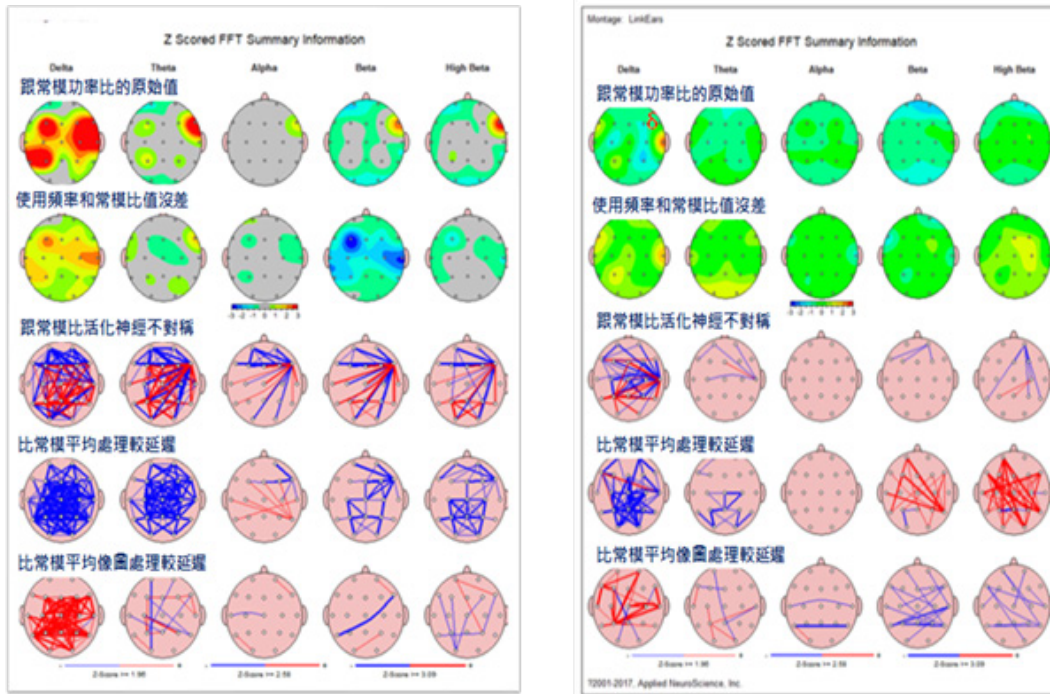
In Absolute & Relative Power.
There are deep red and deep blue. Amplitude asymmetry: SV firm rt ant temp.

After NFB 10 times (One Session).
Absolute & Relative Power: all ok.
Amplitude asymmetry: remain rt. Temp.

Coherence: worse at delta & theta.
Phase lag: severe in delta.
All need neurofeedback for correction.

Coherence: delta weak; hi beta, deep red
Phase lag: mild delta, beta, hibeta
SI improved, not good enough, need more

Absolute power



Coherence: worse at delta & theta.
Phase lag: severe in delta. All need neurofeedback for correction.

Coherence: delta weak; hi beta, deep red
Phase lag: mild delta, beta, hibeta. SI improved, not good enough, need more

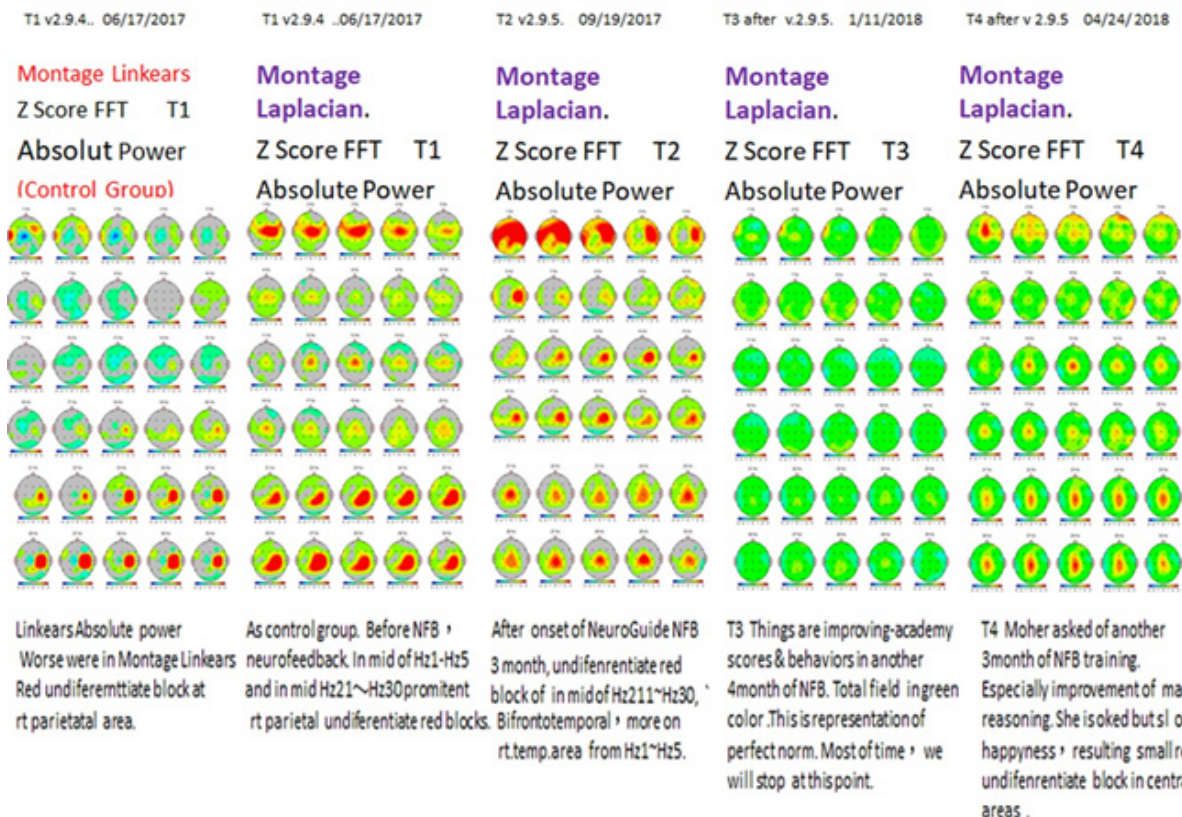


Figure 10: This picture show fluctuation of absolute power in a high IQ.

dopamine of the prefrontal and frontal lobes. That is to prepare for the re-engagement and permanent connection of the peripheral and central nervous system, so that the brain waves are properly adjusted by the neural feedback and the correct command.

Electroencephalogram feedback know the whole brain nerves cells and 10 networks (z Scores) practice. The correction of frontal and prefrontal nerves, blood vessels, regeneration of dopamine, the starting point of angle and jobs are not the same. Therefore, the two kinds of trainings should be carried out at the same time, and the trainings for learning, emotion, concentration and implementation is the best.

Discussion

Everspring SMI-Tx campaign to students with ADHD. Adults as supplemented tendency are obvious. SMI-Tx is also based on the attention deficit hyperactivity disorder (for school children with ADHD). Everspring has been doing this for 35years. The blood vessels, nerves and dopamine, which are not enough for the pale frontal and prefrontal lobes, can make up the aforementioned defects through the strong push of the ball on the Scooter Board. Frontal and prefrontal neurological deficits can be improved in very attractive and intensive activities on Scooter Board in two to four weeks.

But the brains of hundreds of millions of brain cells are acting together. Only the shortcomings of the frontal and prefrontal lobes can be improved, and the intelligence of a human brain cannot be exerted. This year, I contacted Dr Thatcher's brainwave norm theory and practices to express the brain cells and networks too high (abnormal) or normal. It can also improve the brain cell network asphyxiation spread too weak (dark blue) or not yet differentiated (dark red), but improved through neural feedback.

51 cases were helped to do neurofeedback. Seasonal flu was prevailing at the time and 13 cases got the flu and overcame the flu in one to two weeks, this is a very nice improvement. 38 cases were smoothly trained in neurofeedback and improved in school, homework, behavior mood, and were very satisfactory improvements.

14 cases of correcting for typical ADHD symptoms only. All are male. parental saw no needs to correct trivial small symptoms and signs. No one coming back for further consultation. We made phone call to the 14 parents in the evening lunch times. Six families called twice in different days and no body answers. Responding 8 cases said that special education teachers ask no more to take Ritalin. School achievement are around mid-average. Pear relationship are

good. No outstanding cases, according to parent reports.

Acknowledgment

Thanks to all the participating partners of the Everspring Culture and Education Foundation, as well as the cases and parents who joined the brainwave neurofeedback.

The treatment ethics committee of the Everspring Culture and Education Foundation that the study (SMI-Tx) and new EEG diagnosis and neurofeedback training year-end review of the sixth phase of progress). Obtain verbal informed consent from the participant's parents, including the person recording the image, and the parent's written consent.

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